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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The Development of Thoracic Surgery. By Prof. F. SAUERBRUCH.—(*Illustrated*) (*Concluded*) 775

A Case of Botulism. By R. S. AITKEN, M.R.C.P., and B. BARLING, M.R.C.P. Bacteriological Investigation by A. A. MILES, M.R.C.P.—(*With Diagram*) 780

"Specific" and Non-specific Treatment of Boils: Results of Treatment by Staphylococcal Toxoid. By R. KLABER, M.R.C.P. 784

Palpitation. By DORIS M. BAKER, M.R.C.P.—(*Illustrated*) 787

Idiopathic Steatorrhœa with Multiple Nutritional Deficiencies. By H. W. FULLERTON, M.B., and J. A. INNES, M.R.C.P. 790

CLINICAL AND LABORATORY NOTES

Differential Diagnosis of Sprained Ankle. By R. S. WOODS, F.R.C.S.—(*Illustrated*) 793

Treatment of Pruritus Ani by Calomel. By the late T. E. HESS THAYSEN, M.D. 793

REVIEWS AND NOTICES OF BOOKS

From a Surgeon's Journal 1915–1918. By Harvey Cushing 794

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LEADING ARTICLES

THORACIC MEDICINE 797

THE MEDICAL WITNESS AND HIS FEES 798

OBSERVATION WARDS 798

ANNOTATIONS

Fruits, Vegetables, and Nuts 799

After-care in Chronic Arthritis 799

Harvard Tercentenary 800

Chlorination of Drinking Water 800

Psychiatric Demonstrations at St. George's Hospital 801

Hypochromic Anæmia of Pregnancy 801

Royal Medical Benevolent Fund 801

Vascular Tumours of Muscle 801

Narcotic Drugs: Supply and Demand 802

Crystal Palace Baby Show 802

Wasted Lives 802

Botulism 803

Limits of Accuracy in Biological Assay 803

Photography in Medicine 804

PROGNOSIS

CXV.—Prognosis in Hypertension. By Sir MAURICE CASSIDY, F.R.C.P. 805

THE SERVICES

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service 815

NEW INVENTIONS

Closed Drainage of Empyema. By T. HOLMES SELLORS, F.R.C.S.—(*Illustrated*) 796

SPECIAL ARTICLES

Maintenance Costs in Hospital. By A. TOPPING, M.D., D.P.H. 807

Mental Care in 1935: Board of Control Report 810

Medicine and the Law: Unsuccessful Claim against Dentist 806

Paris: Sterilisation of Drinking Water—Welfare of Juvenile Prostitutes 812

Scotland: Aberdeen Royal Infirmary—Scottish Education Department 812

United States of America: Sylvatic Plague—Allergic Reactions to Schick Test 813

Medical Register: Untraceable Practitioners, 1936 816

International Cancer Congress in Brussels: Carcinogenic Agents—X Ray and Radium Therapy 821

Aberdeen Royal Infirmary.—(*With Illustration*) 822

Infectious Disease in England and Wales 815

CORRESPONDENCE

Royal Medical Benevolent Fund: An Appeal (Sir Thos. Barlow) 824

Rochdale and After (Dr. D. Brewer) 824

The Oxford Group and the Medical Profession (Dr. W. H. M. Telling, Dr. A. Cooke) 824

Milk-borne Sore-throat (Mr. F. C. Minett, D.Sc.) 825

Surgical Instruments (Mr. H. G. Drew) 825

Spanish Medical Aid (Dr. Janet Vaughan) 826

Medical School Libraries (Mr. C. C. Barnard, B.A.) 826

An Alleged Remark (Dr. H. H. Bashford) 826

Exploratory Thoracotomy (Mr. G. A. Mason, F.R.C.S.) 826

Fixed Dental Appliances (Dr. N. Bardswell) 827

Antitoxin Treatment of Scarlet Fever (Dr. H. S. Banks) 827

Bacteriological Grading of Milk (Dr. A. H. Priestley) 827

The Patient Looks at the Hospital 827

OPENING OF THE MEDICAL SCHOOLS

The Doctor as Humanist. By Lord HORDER, F.R.C.P. 818

Looking Forward. By Sir CRISP ENGLISH, F.R.C.S. 819

Past Memories and Future Hopes. By ELIZABETH HALDANE, LL.D. 820

GRAINS AND SCRUPLES

From a Departmental Doctor.—I. 814

MEDICAL NEWS

University of Leeds 828

University of London 828

British Institute of Philosophy 828

Royal Sanitary Institute 828

King's College Hospital 828

Medical Peace Campaign 828

Westminster Hospital Dinner 828

Royal Institute of Public Health 829

Society of Chemical Industry 829

Florence Stoney Prize 829

Westminster Hospital and the Coronation 829

Presentation to Dr. J. J. Adams 829

British Emergency Force in Palestine 829

Edenbridge Hospital 806

Fellowship of Medicine 817

Keighley Victoria Hospital 821

Stroud General Hospital 821

The late Dr. William Murphy 832

NOTES, COMMENTS, AND ABSTRACTS

Education and Citizenship 831

Changing Views on Tuberculosis 832

Appointments 829

Vacancies 829

Medical Diary 830

Births, Marriages, Deaths 832

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THE DEVELOPMENT OF THORACIC SURGERY*

BY FERDINAND SAUERBRUCH
PROFESSOR OF SURGERY IN THE UNIVERSITY OF BERLIN

(*Concluded from p. 727*)

Treatment

WE have to thank mistakes for the opportunities of critical observation which they afforded and so helped further progress in intrathoracic surgery. At first the same occurred in thoracic as in abdominal surgery. Clinical conceptions of many lung diseases such as bronchiectasis were inadequate and even partly wrong. In addition we had not yet learnt to estimate the resisting powers of the body in operations on the chest. Improvement also in details of technique has led to increased success.

The preparation of patients for intrathoracic operations is carried out in accordance with general clinical principles. It is important to find before every operation the position which will give the operator the best possible view. All intrathoracic operations are carried out with the patient in a state of deep general narcosis. Such a state diminishes the activity of the vago-sympathetic system and the consequent danger of sudden and even fatal cessation of the heart or of respiration. All rough measures are to be avoided. One must be particularly slow and careful whilst ligaturing the larger bronchi. A fundamental difference exists between the thoracic and abdominal cavities in their reaction to mechanical injuries or inflammations. The peritoneum reacts almost exclusively with a fibrinous exudation. The pleura has a definite tendency to serous effusion, which makes the after-treatment of all intrathoracic operations extremely difficult. The liability of these serous effusions to secondary infection has often spoiled fine technical success. Careful staunching of all bleeding and ligation of severed intercostal vessels is absolutely necessary. Siphon drainage and tamponade must be avoided altogether in aseptic operations. The observation has been confirmed again and again that closure of the thorax diminishes postoperative complications. In addition, we do not completely reinflate the lung when the wound in the thoracic wall is closed. Experimental research has confirmed the clinical experience that a small degree of collapse stimulates the vascularisation of the lung tissue. The rarity of postoperative pneumonias after operations on the thoracic organs is probably connected with this.

Among the manifold disturbances which can occur in the period after the operation those which are due to the effects of mechanical pressure—e.g., plugging, tamponade, &c.—call for special mention. I was able to make a remarkable observation in the case of an English officer. After opening an abscess in the hilus of the right lung and removing a splinter of shell, a tamponade was necessary. A few hours later serious tachycardia occurred which subsided at once when the tampon was loosened, but recurred when an attempt was made to renew it. Without doubt the pressure of the soaked tampons had irritated the particularly sensitive right mediastinal wall. The patient was cured.

* A lecture delivered before the Newcastle and Northern Counties Medical Society and the Society of Thoracic Surgeons of Great Britain and Ireland.

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Acute abscesses must be treated with patience. The pus is generally entirely expectorated. Complete recovery then occurs spontaneously. However, one should not count on this lucky fact and wait too long. If there is no definite evidence of spontaneous resolution after 8–10 weeks' expectant treatment, the question of operation requires consideration. When a clearly demarcated rigid wall around the abscess is observed hesitation is no longer possible. It is necessary to operate immediately because spontaneous healing is on this account impossible. These rigid cavities generally adhere to the chest wall and they are easily opened with the cautery after removal of the overlying ribs. Bleeding is prevented by careful stitching. The possibility of air embolism is not feared when positive-pressure respiration is employed. The weak walls of the pulmonary veins are thus compressed and no air can enter them. Unfortunately it is seldom that patients are lucky enough to have such helpful adhesions. When no adhesions are found on opening the thorax the operation should not be continued because of the danger of secondary septic empyema. The means available hitherto for the formation of pleural adhesions were both uncertain and unsafe. Irritation of the pleura by iodine and other caustics, suturing the lung to the parietes, and finally tamponade, are not the best way to help the patient.

Fundamental changes have been obtained since Baer's plombage has been used in suitable cases. This procedure was first employed in the case of a physician suffering from an abscess in the hilum. Everything indicated the necessity for operation. On opening the chest I could see by the movements of the lung that the pleura was devoid of adhesions and it was not possible to open the abscess. Circumstances forced me, and all I could do was to put a paraffin plug between the partially stripped parietes, the pleura, and the chest wall, and then close the wound. A good result was hardly to be expected. Thus we were all the more astonished to find that after 6 days the expectoration diminished. A few days later an acute inflammation set in, necessitating the opening of the wound cavity. Abundant pus came out, finally air also. The abscess in the lung had perforated into the bed of the plombe protected by the adhesions caused by the latter. An ample evacuation of pus was achieved by enlarging this perforation. The patient was completely healed and is still working at his profession.

In some cases we have seen how the compression of the plug has caused the abscess to discharge into a bronchus and so lead to spontaneous healing. In the majority of cases the desired obliteration of the pleura occurs within 12–14 days. In addition, through the pressure of the paraffin, atelectasis and shrinking of the lung tissue is produced. The opening of an abscess in the neighbourhood of the hilus is made considerably easier. We employ plombage to promote adhesions, at a preliminary stage, when operating upon echinococcal disease of the lung in the presence of a free pleura.

This method has made enormous progress in the treatment of abscess. Whereas the average mortality for the operative treatment of lung abscess formerly was 50–68 per cent. it is now reduced in our clinic to 30 per cent., and in plombage it sunk to 12 per cent.

Obliteration of the cavity does not always follow its surgical exposure. On the contrary, bronchial fistulæ frequently persist when the original abscess is large and multilocular, and extensive cavities may persist in the lung. The main characteristic is the formation of vascularised bands, both large and small, which stretch throughout the whole system of cavities. It is not possible to effect healing then by suturing the opposite walls together, because the surface of this so-called lattice lung becomes covered by a new layer of bronchial epithelium. The closure of these bronchial fistulæ and residual lung cavities can be effected by different methods. When the fistulæ are small, covering with a simple skin flap is enough. Extensive cavities in the lungs open by large bronchial fistulæ which can be closed only after considerable effort. Recently we have learned a great deal in regard to this. The most important thing is extensive mobilisation of the lung out of the diseased tissues in the neighbourhood and the removal of all scarred and insensitive skin. In this way traction on the cavities in the lung is relieved. Their epithelial lining having been destroyed, the cavities are then obliterated by suturing in layers.

Empyema.—In surgical treatment of empyema, as in other fields of surgery and of medicine, the war has been our teacher. Scarcely would it have been possible otherwise to observe in such an impressive manner how a change of pressure within the thoracic cavity is likely to influence the working of the lungs and heart.

Rib resection as a means of evacuating acute suppurating empyema caused by bullet wounds resulted in terrible mortality. We had the same sad experience during the influenza epidemic in 1918. The old doctrine that empyema is to be treated like abscesses—that is, to be evacuated—was now finally shaken. A great step forward was the realisation that the type of surgical treatment must depend on the rapidity of development of the putrifying exudate, on the nature of the underlying or primary disease, and on the gravity of the general symptoms. Acute disturbances of the intrapleural pressure dominate the clinical picture, especially with the parapneumonic empyema of influenza. Rapid respiration, cyanosis, and displacement of the heart indicate the desirability of a careful decompression. The treatment is begun by puncture, and a permanent decompression of the thoracic organs is obtained by the Bulau siphoning. With the aid of a trocar a tube is introduced between the two ribs into the empyema without admitting any air. The pus is allowed to flow into a vessel filled with water; it is therefore simply a siphoning process. Only gangrenous toxic suppurations of the pleura require immediate opening of the thoracic cavity. By placing the bandage in a special way one avoids the dangerous open pneumothorax with its harmful effects on the heart and circulatory system.

Pyopneumothorax.—These experiences have also had a great influence on the treatment of mixed infection pneumothorax in cases of pulmonary tuberculosis. Here one should not wait until the accumulation of pus has given rise to toxic symptoms before making use of the closed siphon treatment. After evacuation with the Bulau siphon there remains behind a huge residual cavity. To obliterate the empyema residual cavity the old Schede plastic operation was originally employed. With non-specific empyemata this can be avoided by suction treatment, but this process is not recommended for the extensive residual cavities of tuberculosis in which the collapse must be maintained. We have now learnt to diminish these cavities by extrapleural thoracoplasty, supplemented if need be by the removal of the calloused lateral chest wall. These are very serious operations and success can only be achieved when every obstructing rib stub has been completely removed. The mortality, which to begin with was 95 per cent. for cases of mixed infected empyemata, has to-day been reduced to 15 per cent.

Foreign bodies.—With the later complications of injuries caused by projectiles retained in the lungs, many of the patients suffer very little inconvenience, others complain of shooting pains, aches, sensations of pressure in the chest, &c., possibly caused by callosities of the pleura. Most often pus is formed soon after the accident, but occasionally only after several years; sometimes even gangrene develops. Spontaneous recovery is rare. After long cachectic illnesses the patients succumb to such acute complications as abscess of the brain, meningitis, or pneumonia. Hæmorrhages are of graver significance. They are mostly due to the bursting of small veins or arteries in the region of the foreign body. The sharp edges of the splinter lacerate the tissues, especially when through deep breathing the foreign body is moved. Such a hæmoptysis may be fatal. Both pus formation and hæmorrhage are urgent indications for thoracotomy and removal of the foreign body before the patient becomes too weakened. Since the chances of recovery are usually good, operation may be advised without too great a fear. In a series of about 200 cases where retained projectiles were removed from the lung by operation, the mortality was 7 per cent. Many were located very near the hilus, and careful suturing around the vessels was absolutely necessary.

CANCER

It is not generally appreciated that an abscess may form by the fusion of large suppurative foci within a cancer of the lung. We have often been able to make a correct diagnosis by exploration, and on the other hand we have kept patients supposed to be suffering from cancer of the lungs quiet and satisfied by the knowledge that their condition was one of pulmonary abscess. This experience compelled us to attach a great deal of importance to a timely exploratory thoracotomy. In considering radical operation, only those cancers that are in the cortical region of the lung can be discussed, for cancers of the hilus usually only come to us when the mediastinum has already been invaded. Out of 9 patients subjected to a radical operation only 3 were permanently cured.

For malignant disease of the lungs we must generally content ourselves with palliatives. The removal of ribs from the overlying chest wall as a means of removing the pressure on the lungs is particularly necessary when as the result of the infiltration of the tumour shrinkage has resulted. When hiccough is persistent, section of the phrenic nerve gives relief. We have had no success by employing X rays. Here and there we have even seen a rapid increase in the rate of growth. For this reason we have completely abandoned X ray therapy.

OTHER TUMOURS

I should like to single out only two forms of benign tumour of the lungs. We find that hæmangioma, which is rare and accompanied by profuse bleeding, is so difficult to detect and to diagnose that there have only been 3 such patients on whom I could operate.

Benign cysts of the lungs are more frequent, and in the course of the last few years we have dealt successfully with a large number. They form cavities in the tissue of the lung which are lined with epithelium and full of liquid. Generally they remain undiscovered until the contents become purulent by means of secondary infection. One takes such cases to be those of empyema and opens them in the usual way. Recovery, however, depends on the complete elimination of the sac.

BRONCHIECTASIS

These congenital cysts of the lung have assumed increased significance because it is through them that we have acquired an understanding of a common type of bronchiectasis—namely, the congenital variety. One must distinguish it from the so-called secondary bronchiectasis, which is the result of changes in the tissue of the lungs brought about by inflammation or by callosity due to pleuritis.

The previous history of a patient with this type of disease is interesting and instructive. In congenital bronchiectasis the symptoms due to catarrh in the lungs are observed in the lungs from early childhood, and here and there members of the same family are attacked. Two of our patients were uniovular twins. When a case of bronchiectasis of this type is operated on, a pleural space is found free from any morbid changes. The lung itself is soft and of rosy colour. The bronchial tubes, which have become thickened and dilated, can be felt through the soft tissue, which is healthy in the average lobe removed. It is important to remember that the congenital form of bronchiectasis attacks, in 80 per cent. of cases, only the left inferior lobe. The important observation emerged from histological experiments conducted by my assistant Lotzain about ten years ago that these bronchiectases have an arrangement of the bronchial wall similar to that of the cysts of the lungs.

We regard this form of bronchial dilatation as a result of disturbed development, out of which, subject to differences of time and place and as a consequence of earlier faulty growth, the cysts of the lungs might as reasonably appear as mediastinal bronchogenic cysts. In this connexion I might relate a striking experience. A young soldier was admitted to hospital, his disease being diagnosed as intrathoracic struma. He expectorated profusely. A shadow exceeding the size of a fist was seen in the posterior mediastinum, and this had pushed the œsophagus on the side. I operated, being unaware of the exact diagnosis. During an attempt at extirpation the partly mobilised mass was lacerated. Out of a big sac the same sort of pus came out that had been expectorated by the patient; there was a communication with the left bronchus. Unfortunately the patient died. The wall of the sac contained a cartilage and, according to its structure, turned out to be a bronchial cyst. Simultaneous congenital bronchiectasis was found in the left inferior lobe.

FIG. 2.—Diverticulum of the thoracic œsophagus, which has perforated into a bronchus.

Knowledge of the peculiar feature of the congenital bronchiectasis, its distribution in entire lobes of the lung, determined the character of the treatment. The old method of ligation of the pulmonary artery has been abandoned and plombage substituted as a preliminary stage. After pleural adhesions have formed the diseased lobe is removed at a second operation when a rubber tube is tied tightly round its pedicle in the neighbourhood of the hilus. After 8–10 days the lobe is sequestrated as the result of pressure necrosis.

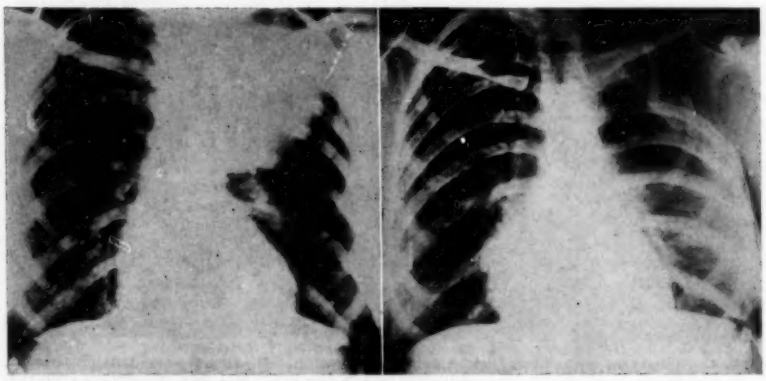

FIG. 1.—Ganglion neuroma of the posterior mediastinum, before and after operation.

Before the development of this method the difficulties and risks of lobectomy were considerable. A complete single-stage operation involving division of the vascular and bronchial elements in the hilus proved to be beset with danger. If the bronchus receded into the mediastinum the patient died of suppurative mediastinitis.

On the other hand I was able, in 1932, to report on a series of 58 cases in which a lower lobe was removed by my two-stage method, in which the mortality amounted only to 10 per cent., a much lower mortality than has been attained in any series of cases operated on by the direct or one-stage method. I do not think that this latter is as radical an operation as mine, but the successful cases which I have seen here to-day suggest that it is one of great utility, especially when the bronchiectatic dilatation has a peripheral distribution.

For bilateral bronchiectasis, as a rule, we employ plombage. This is also preferred in the treatment of very young children who have only symptoms of catarrh. Collapse by means of thoracoplasty has proved suitable for certain unilateral but extensive types of bronchiectasis where the lung is like a honeycomb. Artificial pneumothorax is not effective, partly because the mobility of the mediastinum, and because at best the parenchyma of the lungs rather than its dilated bronchi are affected. Abscesses associated with bronchiectasis, particularly those causing marked toxæmia, are generally opened.

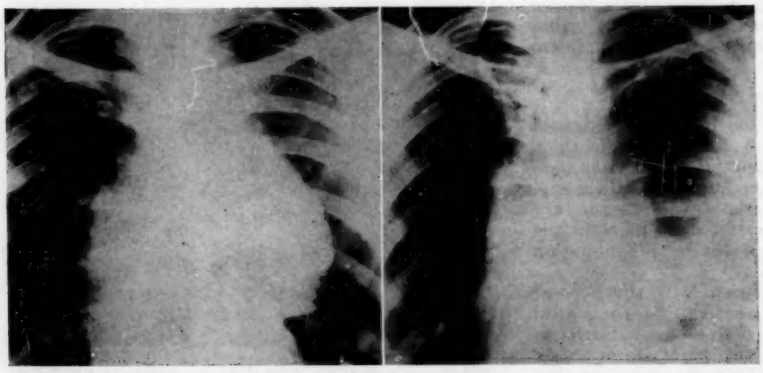

FIG. 3.—Congenital cyst of the mediastinum, before and after operation. The cyst had filled with blood after a severe injury to the chest.

Brief mention must be made of a particularly striking example of what can sometimes be achieved.

A child was admitted into our hospital suffering from tension pneumothorax and mediastinal emphysema, the results of injuries caused by an accident. We succeeded in saving the child, the emphysema being relieved by incision into the neck immediately above the jugulum. The tension pneumothorax and a subsequent empyema were dealt with by thoracotomy and after some time he developed expectoration, due we discovered to bronchiectasis involving the whole left lung. My chief assistant at the time, Dr. Nissen, renewed the entire lung in two stages and the child was restored to health.

I might assume that we were dealing in this case with symptoms of a coincidental congenital bronchiectasis. It is admittedly possible, however, that the cause was a bronchiectasis which occurred after the accident. Mason, also using a similar two-stage method, has successfully resected the entire lung for bronchiectasis.

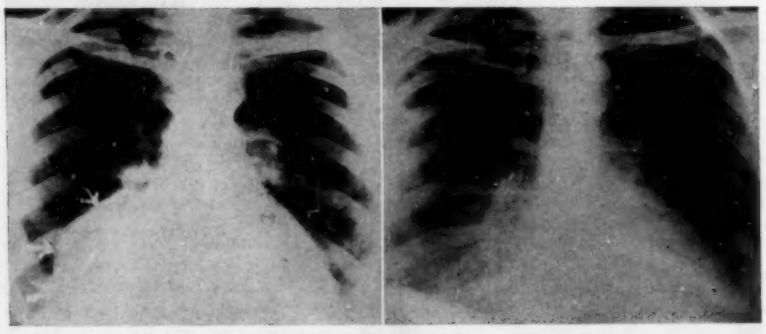

FIG. 4.—Aneurysm of the heart, before and after operation. Diagnosed as mediastinal tumour, it was found at operation to be an aneurysm of the heart and was successfully removed.

THE DIAPHRAGM

Experience in the war also assisted the development of the surgery of the diaphragm.

Wounds.—The then customary abdominal route for cases of tangential shot wounds of the trunk with simultaneous wounding of the lung, the diaphragm, and the organs of the upper abdomen, permitted only a limited view and required an additional second operation on the thorax. These difficulties were removed by the use of the transpleural approach and the development of transdiaphragmatic laparotomy. This gives good access to both thorax and abdomen through a single point of entry. The chest is opened through an incision in the line of a lower intercostal space, portions of ribs being removed if necessary. It is then advisable to paralyse the diaphragm by crushing the phrenic nerve as it lies on the pericardium. The organs of the upper abdomen are then exposed by splitting the fibres of the diaphragm. At our clinic this is also the method preferred for the operative treatment of serious diaphragmatic herniæ. Only in this way is a good view obtained, and the possibility of freeing the adhesions ensured under visual control. We use a double layer of sutures to close the aperture of the fissured diaphragm. At the last French surgical congress, on the basis of my own considerable experience, I emphatically recommended the transpleural method for these herniæ.

In *agenesis*, artificial separation of the thoracic and abdominal cavities is not possible. If symptoms of space restriction appear through prolapse of the intestine one must attempt relief by removing a few ribs.

For *subphrenic abscesses* transdiaphragmatic drainage presents hardly any difficulties when there are adhesions in the region of the sinus pleuræ. When the pleural space is free it is essential after opening the thoracic cavity that the diaphragm should be sewn into the thoracic opening in a circular manner. In this way the abscess may be opened extrapleurally.

THE MEDIASTINUM

It is best to carry out exposure of deep-seated goitres; fissure of the manubrium sterni up to the third right intercostal space effects a wide enough gap to facilitate removal of the struma. By putting in a wooden wedge one can keep this space open and so relieve the distressing pressure symptoms due to inoperable malignant growths or aortic aneurysms. This enlargement of the space relieves pressure on

the trachea and on the great vessels, and removes the symptoms of back pressure in the circulation. You all know the striking symptoms: abnormal swelling of the veins of the thorax, neck, and arms; the swollen reddish face; and the cyanotic lips and blue ears.

Exudate in the pericardium and indurated pericarditis may also cause back pressure of the circulation. When, after an injury to it, tamponade of the heart is caused by pressure of accumulating blood in the pericardium, the venous return towards the right half of the heart is obstructed by constriction of the veins and a fatal termination is inevitable unless the pressure is relieved.

The severe symptoms of mediastinal emphysema are due to compression of the great veins by the extravasated air pent up in the fascial planes. It can be immediately relieved by simple incision in the neck just above the jugulum. On the other hand we find in long-standing tracheal stenosis—e.g., due to obstructive goitre—distension of the big veins draining into the right heart and the lungs. That explains why the heart is dilated in such cases of goitre. These brief observations are placed at your disposal as the results of many-sided and systematic investigations which are essential to a right understanding of disturbances in circulation.

New growths.—In a whole series of mediastinal growths, symptoms of respiratory or circulatory embarrassments have not been observed when the growths were predominantly intrathoracic. I am sure you are all familiar with dermoid cysts of the anterior mediastinum. It is necessary to emphasise the need for removing them before their contents leak into a bronchus. If this has already occurred, operation is naturally more difficult because of adhesions, especially to the lateral part of the mediastinum and even to the heart itself. Usually we operated in one stage without losing a patient. In the case of a woman with an enormous dermoid cyst which filled the left pleura and pushed the heart away to the right it was necessary to abandon the operation on account of the dangerous reflexes, due to relief of pressure, obtained by draining the liquid. We tamponaded it loosely, and closed the opening and the wound in the chest wall; by several subsequent stages the cyst was evacuated and the patient cured.

We have seen a whole succession of ganglioneuromata, rare growths in the form of solid tumours in the posterior mediastinum, amenable to operation as a rule. These are generally benign but may assume enormous dimensions or undergo degeneration. In our clinic 8 such cases have been successfully treated (Fig. 1).

THE ŒSOPHAGUS

It was the serious efforts of my teacher, Prof. Mikulicz, to remove radically carcinoma of the thoracic œsophagus, which determined my concentration on the problems of thoracic surgery. As the natural result of these experiments the idea came to me to restore the connexion between the œsophagus and the stomach by the displacement of the latter into the space available in the chest. In the course of experiments with animals this method has justified itself. Operations conducted on men were, however, full of disappointments. The uncertainty of the suture lines and liability of the mediastinum to infections caused many failures.

In spite of the difficulties referred to, resection of the thoracic œsophagus has been performed, but only successfully 9 times up till now. Fate has destined that success in this sphere should come to Torek and to Lilienthal in America, to Caijer in Holland, to Grey Turner in England, and to Kuttner and to myself in Germany. My case was that of a patient from whom the lower segment of the thoracic œsophagus was successfully removed.

Successful resection of the lower segment of the œsophagus and restoration of the continuity to which I have already referred to was carried out for the first time in the case of a patient who had not a cancer but an œsophageal ulcer with secondary cardiospasm.

Œsophagogastrostomy improved the general condition of the patient, but only temporarily. At the second operation the ulcer scar, together with the anastomosis, was invaginated into the stomach, but, in spite of crushing and ligation of the scar tumour above and below, the expected sequestration through necrosis did not occur and the life of the patient depended on her jejunostomy. She recovered so little as a result of this that I was compelled to undertake a third operation, when I carried out a resection of the lower portion of the œsophagus and restored continuity by joining the stomach and the cut end of the œsophagus. The patient recovered and gained 20 lb. in weight. She died one and a half years later from a complication, a high ileus band formation in the upper abdomen, which unfortunately had not been recognised.

Diverticula of the œsophagus are a highly fruitful and promising field of research. Very large diverticula of the cervical œsophagus with a maximum capacity for 300 c.cm. sometimes reach far down in the mediastinum. We now operate on these in one stage, and have been successful in relieving 50 such patients from their sufferings. In 4 of our cases of diverticula of the thoracic œsophagus they had perforated into the lung; through the posterior paravertebral approach, the connexion between the bronchus and the œsophagus was divided between double ligatures and its stumps buried by suturing. All the 4 patients have remained healed (Fig. 2). While in Munich I was compelled in one such case, whilst disconnecting the course of the fistula, to make a considerable dissection through the lung tissue. The success of the method has been fully demonstrated.

The diagnosis of the so-called epiphrenal diverticulum can present difficulties. Should suffering be considerable the best course is to extirpate the pouch.

Cardiospasm.—The nervous disturbances in the region of the cardia are of practical importance. They give rise to difficulties in swallowing and finally result in a marked degree of emaciation and bring despair to the patient. A careful interpretation of the symptoms should lead to the exclusion of cardiospasm due to a central neurosis and capable of relief by means of psychotherapy, combined in some cases with dilatation of the cardia. Cardiospasm may also result from some local focus of irritation—an epiphrenal diverticulum, a peptic ulcer of the œsophagus, or even a tumour. Treatment of this local focus will cure the syndrome. In one very remarkable case of this type, a 12-year-old boy complained of difficulty in swallowing and attacks of cardiac distress associated with irregularity of the pulse. He was found to have a cyst the size of a small apple in the wall of the œsophagus, and once this was removed his symptoms were relieved. Finally there are cases of cardiospasm of long standing, in which stricture formation has occurred at the cardia; these cases require the operation of œsophagogastrostomy by the left transpleural route.

These observations on cardiospasm are important because they illustrate anatomical causes of spastic

disturbances. In this connexion I may say something of the so-called hiatus hernia which, like the cyst in the above-mentioned boy, may give rise to similar gastro-cardial symptoms. Swedish radiologists such as Ackerlund and also those in the Bergmann clinic in Berlin have pointed to the prevalence of these herniæ. The astonishing numbers, literally hundreds, of hiatus herniæ led to an examination of these findings in our clinic. It was then seen that under certain conditions of examination—deep breathing in the dorsal position—extraversions of the œsophagus are so often seen that the so-called hiatus hernia is frequently erroneously diagnosed. Congenital shortening of the œsophagus is always associated with a genuine hiatus hernia. I have only operated on one such patient, but unfortunately she died.

Benign tumours of the œsophagus are extremely rare. From a patient with serious dysphagia we removed a myosarcoma 22 cm. long which was extensively infiltrating the wall of the œsophagus. The tumour was successfully extirpated by the transpleural route, and the stomach, having been displaced into the chest, was anastomosed to the œsophagus. The patient was cured of his complaint and is now at work again.

THE HEART

The chief tasks of cardiac surgery are in connexion with wounds. Knowledge of the effect of the cardiac tamponade produced by a hæmopericardium and its clinical symptoms aids diagnosis, so resulting in prompt operation. Further progress in this sphere has been made by improving the technique of the actual stitching of the heart and by greater knowledge of its special blood-supply. Exudates may also mechanically embarrass the action of the heart. Early purulent and other effusions are first released by puncture, but wide exposure and drainage is required for the more chronic purulent collections. Rheumatic pericarditis may lead to obliteration of the pericardium and the disturbed action of the heart may be relieved by decortication according to the Delormes method, but if the heart is hindered in its action by adhesions of the pericardium to the thoracic wall, then extensive rib resections over the precordium are first called for, for they make the thoracic wall more supple.

Attempts to treat the various forms of heart disease by operation have not got beyond the experimental stage, and our clinic too has had a share in this work.

I shall now end these few remarks on cardiac surgery with an account of a particular experience.

A man came to our clinic some time after his chest wall had been crushed. His complaint arose from a tumour on the left mediastinum. On extirpation this proved to be a congenital cyst filled with old blood. The patient was cured (Fig. 3).

Soon after a girl was brought to the clinic. She had had influenza a year before followed by heart trouble, and had been sent to us by a health resort doctor. In this girl we found an X ray shadow very similar to that in the last case, but on the right side—i.e., in the region of the right half of the heart. Remembering the findings in the case described above, a mediastinal tumour pressing on the right half of the heart was suggested. After thoracotomy a cystic tumour almost as big as a baby's head was found, with its base deep in the mediastinum. In order to reduce the tumour a puncture was made, but only a little blood was obtained. Another puncture was made elsewhere; the blood spurted out in a jet on the needle being withdrawn. I attempted to close the puncture opening by stitching, but the stitches tore out and the wound widened. A terrific jet of blood spurted out at me. I quickly applied the first and second finger of my left hand to the gaping wound and stopped the bleeding. At a depth of 6–7 cm. I felt a sharply defined ring, beyond which there was another hollow space. Bubbling and swirling of the blood therein showed it to be a ventricle or atrium. There was no doubt that we had opened an aneurysm of the heart. We succeeded in carrying out the called-for removal of the aneurysm and in closing the defect in the wall of the heart. We waited with great anxiety to see what would happen in the post-operative period. Everything went well. The patient is still, after 4 years, in good health, and, as we are able to observe from time to time, free of any functional disturbances of the heart.

This happy result, which represents a certain progress in cardiac surgery, followed a wrong diagnosis but the right operative treatment (Fig. 4).

Conclusion

I have tried to show how thoracic surgery has developed, from small beginnings and limited possibilities, to great and distinguished achievements.

The further development of our science depends on two things. First, it must maintain its self-sufficient existence. Secondly, only through the mastery and survey of the entire field of human endeavour and achievement is substantial progress made. Beyond this there should be a living contact with the whole science of medicine and, before all, with the great science of surgery. The life of modern surgery owes its dynamic character to the union of technical medical science and the artistic activity of the doctor. In their harmonious relationship and interaction lies the guarantee for achievement and future advance. Technical skill is indispensable, but it should never degenerate into an end in itself. Medical science communicates new ideas and knowledge which justify and promote our work, but medical science becomes a source of danger when she overrates one-sided and petty discoveries and handicaps the independent judgment of surgeons. Technical skill and science reach their ultimate and highest value in the creative art of the surgeon, which springs from the personality and is an expression of the surgeon's general outlook.

A CASE OF BOTULISM

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Several cases of botulism (Templeton; Kitcat; Lane and Jones-Davies) were reported in London during the hot summer of 1935, all arising from the consumption of vegetarian nut brawn put up in glass containers. The disease in the case here reported, which occurred during the same season, had a different origin but the clinical features were typical.

The patient, a manufacturer's agent aged 55, living in Hammersmith, was in good health, except for a recurrent complaint of mild dyspepsia, up till the onset of the illness to be described. On August 14th, 1935, his wife cooked a meat pie, and shortly afterwards left her home for a holiday. The ingredients of the pie were half a pound of minced beef, two potatoes, flour, and lard; the beef was already minced when bought. The patient ate some of the pie cold on the 14th and more on the 15th without ill-effects. On August 18th, spending the week-

end with his wife, he told her that part of the pie remained uneaten at home; she advised him not to eat it—the weather being unusually hot—and gave him a neck of mutton and six sausages to take home instead. He went home on the 18th and that night ate the remainder of the pie. Early the next morning he began to suffer from vomiting and diarrhœa which continued at intervals for about 24 hours. He apparently worked on the 19th and 20th and went to work on the 21st, but then became more ill and had to go home. At 5 o'clock he went to see his doctor, having then had no vomiting or bowel movement for 24 hours. His doctor described him as pale, short of breath, exhausted, and looking seriously ill; his tongue was white and furred, his fauces red and œdematous; there was no ptosis and no complaint of difficulty in vision. His doctor diagnosed food poisoning and advised him to go into hospital; he refused, and walked home, taking with him 1½ oz. of castor oil and a bismuth and chlorodyne mixture. Early next morning (August 22nd) he asked a neighbour to summon the doctor, who found him pale and clammy, scarcely able to walk, with his eyes half closed and a weak irregular pulse. He still refused to go to hospital. A turpentine enema produced a loose slimy fæcal result, and stimulants were given. At 1.45 P.M. his wife returned; he looked pale, his eyes were shut, and he complained of choking. She persuaded him to go to hospital.

On admission, at 4.30 P.M. on August 22nd, to the Hammersmith Hospital (No. 2382) he was drowsy, cyanosed, and very ill, lying helplessly on his side with his eyes closed. When spoken to, he raised his upper eyelids with his fingers, and answered intelligently in a weak voice with very imperfect articulation. He was a little restless and anxious. There was complete ptosis and almost complete paralysis of all ocular movements, and the pupils were dilated and fixed. He could see and could move his face and jaw. Mouth, tongue, and fauces were extremely dry with inspissated mucus adhering in places to the mucous membrane. He could not protrude his tongue beyond his teeth, and could not swallow. He could move his limbs; biceps, triceps, supinator, knee- and ankle-jerks were present and symmetrical, and the plantar responses were flexor. No significant abnormality was found in the heart, lungs, and abdomen, except that the bladder was distended. Urine obtained by catheter had a specific gravity of 1026, contained a trace of albumin and a trace of reducing substance, and gave a strongly positive Rothera reaction. There was no fever; the pulse was moderately strong, 80 per minute, and the breathing was somewhat noisy through mucus in the throat.

At 7 P.M. he was given 2 c.cm. of *botulinum* antitoxic serum (mixed A and B types, as supplied to the Ministry of Health by Burroughs and Wellcome) in 300 c.cm. of 5 per cent. glucose in saline, intravenously. No untoward reaction occurred, and this was followed by 48 c.cm. serum in 600 c.cm. of glucose-saline. The pulse-rate rose to 128 and breathing became difficult. Adrenaline was given and oxygen by intranasal catheter. At 8.30 P.M. continuous rectal administration of glucose-saline was begun. At 10 P.M. his colour and general condition had improved, breathing was steady, pulse-rate 120. At 11 P.M. his breathing rapidly became shallow and irregular, his pulse thready and too fast to be counted. Artificial respiration was begun, but he died at 11.10 P.M., and artificial respiration was discontinued half an hour later.

AUTOPSY

A post-mortem examination was made 18 hours after death by Sir Bernard Spilsbury, to whom we are indebted for the following report:—

External examination.—A heavily built man. Rigor mortis present throughout body. Hypostasis present; decomposition absent. Pupils normal; lips and finger-nails slightly livid.

Internal examination.—Scalp normal. Skull thick, hard, and heavy. Meninges slightly congested: veins full. Slight excess of clear fluid in subarachnoid space over back of brain. Slight atheroma of basilar artery. Venous sinuses contain dark fluid blood. Brain firm. White matter congested. Some reddish mottling of grey matter of lenticulo-striate nuclei, and in pons and medulla. Spine normal.

Pericardial cavity contains a little clear fluid. Heart moderately enlarged. Right cavities moderately dilated, containing a little dark fluid blood. Left auricle slightly dilated; left ventricle rather more dilated. Tricuspid orifice admits four finger-tips; mitral orifice admits three fingers easily; these valves somewhat thickened at margins. Cardiac muscle appears normal (a trace of fatty degeneration and some brown atrophy seen in subsequent microscopic examination). Several syphilitic scars on arch of aorta; slight atheroma of descending thoracic aorta and lower part of abdominal aorta. Several small atheromatous areas in coronary arteries.

Upper air-passages are stained red and contain some deep red material resembling stomach contents. Glands at bifurcation of trachea and at roots of lung very pigmented. Thyroid congested; right lobe slightly enlarged. Thymus absent. A few old pleural adhesions over the posterior part of the right lung. Lungs congested throughout. Right lung very œdematous, especially at apex; left lung less œdematous. Some general emphysema and slight chronic bronchitis of both lungs.

Tongue slightly furred but not bruised. Tonsils scarred at bases. Pharynx and œsophagus normal.

Stomach contains some thick deep green fluid with oil drops on its surface (? castor oil); wall shows only hypostatic congestion. Small intestine shows some congestion—probably hypostatic—of its lower part. Contents of its upper part are similar to stomach contents, becoming lighter in colour lower down and less fluid in lower part of ileum. No solid food present. Mesenteric glands and appendix normal. Cæcum and first part of ascending colon congested, the rest of the large intestine normal. Large intestine contains normal fæces, having an odour of turpentine in the lower part. Peritoneal cavity contains a small amount of clear fluid.

Liver shows some pale mottling especially about the junction of right and left lobes (early cloudy swelling). Gall-bladder small, containing only colourless mucus. A small calculus blocks the orifice of the cystic duct. The wall is thickened. Spleen soft and congested.

Kidneys: no trace of right kidney found; left large (11½ oz.) and congested. Pelves and ureters slightly dilated. Bladder congested, containing some clear urine. Suprarenals and pancreas normal. Genital organs normal.

Microscopic examination of medulla.—General venous congestion especially of the smallest veins. Around one of these is typical cuffing—i.e., accumulation of cells in the perivascular lymph space; the cells are mainly small round cells resembling lymphocytes, with a few larger cells of endothelial type. The nerve-cells show very marked degenerative changes. Nissl granules completely absent; there is lateral displacement of the nucleus in many of the cells; the nucleus stains very poorly and in some cells no nucleus is visible; there is some neuronophagia. A few cells contain brown pigment granules. There are also areas of marked neuroglia cell proliferation. No hæmorrhages are visible in the sections.

Bacteriological examination of heart blood and spleen, and of the contents of the stomach, the small intestine, and the large intestine (made by Dr. Hewlett at the L.C.C. Group Laboratory, Archway Hospital), detected no pathogenic organisms by aerobic or anaerobic cultivation. *Cl. botulinum* was specially looked for.

Bacteriological Investigation of the Suspected Foodstuffs

(*By* DR. MILES)

Samples of the meat foods eaten by the patient in the few days preceding his illness were obtained. They consisted of two cooked mutton chops, some cooked sausages, and the remains of a meat pie. Saline extracts of the chops and sausages had no effect on mice and yielded nothing of importance on bacteriological culture. The dish containing the remains of the pie had been flooded with water from a tap and left standing in a sink, from which it was

brought for examination. About 250 c.cm. of watery fluid remained in the dish; it had a surface film of grease and contained a few small flakes of pastry and granules of pink mincemeat. A sample was spun free of gross particles, and whereas 0·5 c.cm., intraperitoneally injected, killed a mouse, the addition of 0·2 c.cm. of polyvalent botulinum antitoxin entirely neutralised its lethal effect in a second mouse. A rough estimation showed that the fluid contained about 50 minimal lethal doses (m.l.d.) for mice per c.cm. The toxic principle was heat-labile, in that the fluid heated in an ampoule for 30 minutes at 100° C. failed to kill three mice in seven days. The specific nature of the neutralisation by the botulinum antitoxin is shown in the experiment recorded in Table I., in which 0·25 c.cm. (12 m.l.d.) of the fluid

TABLE I

Effect of Polyvalent Botulinum Antitoxin on Lethal Power of Pie-dish Washings

Fluid (12 m.l.d.)	+ neat A.T.	3/3 survived.
"	+ 1/10 A.T.	2/3 survived.*
"	+ 1/100 A.T.	3/3 survived.
"	+ neat antityphoid serum	3 dead in 20 hours.
"	+ saline	3 " "

* One died within an hour of injection as the result of an accident.

were mixed with equal volumes of varying dilutions of antitoxin, neat antityphoid serum, and saline. Three mice were used for each test.

About half the pie was left uneaten on August 14th, and prior to its ingestion on the 18th had been kept in a disused gas oven standing in a small scullery. The scullery "got the late afternoon sun" and became very hot in warm weather. The maximum and minimum temperatures (Fahrenheit) recorded at the nearest meteorological station (Kensington) during the hot weather of August 15th–18th, 1935, were as follows:—

August 15th ..	68–58°	August 17th ..	70–54°
" 16th ..	69–55°	" 18th ..	74–59°

The temperature of a sun-heated scullery would rise higher than the maxima recorded in the shade.

ISOLATION OF THE ORGANISM

The pie-washings contained Gram-positive bacilli and cocci, abundant Gram-negative bacilli, and a few oval spores. The examination for members of the *Salmonella* group (Browning's brilliant green enrichment method) was negative, all plates yielding a heavy growth of a non-lactose-fermenting, gelatin-liquefying, Gram-negative bacillus (Strain M. 90).

Broth and cooked-meat cultures of the washings, plated before and after heating in an ampoule for two hours at 60° C., yielded organisms biochemically resembling *Cl. œdematiens* and *Cl. fallax*. The criterion of specific toxicity for mice of culture filtrates was used in the subsequent attempts at isolation.

The test was as follows:

A cooked-meat culture was filtered through a small wad of cotton-wool to remove traces of fat, spun free of the bulk of bacteria, and mixed with polyvalent antitoxin (Burroughs and Wellcome, as supplied by the Ministry of Health), 0·4 c.cm. + 0·1 c.cm. A second sample was untreated. Both were held at 37° C. for 30 mins., and injected, each into one mouse. The fluid was deemed to contain *Cl. botulinum* toxin if the antitoxin mouse remained healthy for five days, while the second mouse died within 20–30 hours with typical symptoms—i.e., slowing and final failure of respiration, the breathing becoming noticeably costal at a rate of about 120 per minute, and sudden and heaving, with deep indrawing of the flanks and abdomen on inspiration, when the rate had dropped to 60 and less. Specifically toxic cultures were plated, single colonies tested for their power to split glucose agar shake cultures, and, if this was present, for their toxinogenic powers. The cooked-meat cultures of the colonies were incubated for ten days, and proved non-toxic in several trial platings. Toxinogenic cultures were obtained only when the ten-day incubation period, selected as an average of the periods reported for maximum toxin production, was abandoned in favour of two-days' incubation.

The culture finally isolated was plated, and a single colony cultured and replated. The replating was repeated twice, and a batch of Seitz-filtered toxic broth prepared from a four-day cooked-meat culture of the second replating.

TYPING OF THE TOXIN

The toxin, when prepared, contained 3000 m.l.d. for mice per c.cm. Batches of three mice were injected intraperitoneally with 31, and with 6 m.l.d. in a 0·25 c.cm. volume, mixed with 0·01 c.cm. of monovalent antitoxin, or with saline. We are indebted to Dr. R. A. O'Brien for the Type A antitoxin, prepared against the Loch Maree toxin; and to Dr. W. M. Scott for the Types B and C, prepared against toxins from American strains. Control batches were tested with B and C antitoxins alone, to exclude possible toxic effects of the glycerin they contained. Table II. summarises the result. All

TABLE II

Effect of Types A, B, and C Antitoxin on Lethal Power of the Botulinum Toxin

M.l.d. of toxin.	Type of antitoxin.	Deaths.	M.l.d. of toxin.	Type of antitoxin.	Deaths.
31	Nil.	3/3	31	C	3/3
31	A	3/3	6	C	3/3
6	A	2/3*	0	B	0/3
31	B	0/3	0	C	0/3
6	B	0/3			

* Survivor typically ill for three days.

the deaths, with the exception of one at 40 hours, took place within 18 hours; the survivors lived at least nine days.

The toxin is Type B. It kills mice with typical symptoms when given by mouth, and toxin-antitoxin mixtures are innocuous by this route.

CHARACTERS OF THE STRAIN ISOLATED

The *morphology* is typical. Spore-formation is slow. The organism is 0·75 μ wide by 1·5 to 6·0 μ long. Spores are oval, sub-terminal, and bulge the bacillus; they are formed sparsely in culture.

Surface colonies have a granular surface and a coarsely lobate or fimbriate edge. *Deep colonies* are opaque, lenticular, gas-filled, with the marginal indentation described by Burke (1919). Rapidly growing deep colonies, in sucrose or mannite agar, are smaller and consist of masses of proliferating lobes, like small cumulus clouds.

Metabolism.—Anaerobiosis is strict. The growth on most media is poor, is more abundant at 32° C. than at 37° C., and is improved by the addition of carbon dioxide to the atmosphere of the anaerobic jar.

The improvement in the presence of carbon dioxide is considerable, as the following experiment shows. Serial fivefold dilutions of a spun deposit of *Cl. botulinum* culture were dropped in 0·02 c.cm. amounts on to the surface of over-dried nutrient agar plates. Six dilutions were seeded in marked spaces on each plate, the drop from the 50-dropping pipette being allowed to spread to its fullest extent without interference. Four plates were used for each test, and the number of colonies developing in the dilutions that yielded discrete colonies were averaged. This gives a measure of the viability of the organisms on surface culture under different conditions. Surface viable

counts of the same suspension incubated for two days in the following ways were :—

Temperature (° C.).	Atmosphere.	Viable organisms (per c.cm.).
37	Anaerobic.	400
37	Anaerobic + 10 per cent. CO_2	132,000
32	Anaerobic.	3,000
32	Anaerobic + 10 per cent. CO_2	340,000

The counting method yields only approximate results, but the difference is striking enough to discount the possibility that it is due to experimental error. The result confirms the observations of Rockwell (1924) and Dack et al. (1927) on the improvement in growth of anaerobes in the presence of carbon dioxide.

Later subcultures of the strain behaved similarly in atmospheres of CO_2, but the effect was less marked. It is possible that CO_2 is most effective on freshly isolated cultures, since similar tests on stock cultures of anaerobes showed that the viability of strains of *Cl. œdematiens* (N.C.T.C. 538), *chauvoei* (N.C.T.C. 502), *septique* was depressed about 30-fold by 10 per cent. CO_2; that of *Cl. sporogenes* (N.C.T.C. 533) and *histolyticum* (N.C.T.C. 503) and type A strain of botulinum (N.C.T.C. 773) was unchanged; and that of a strain of *Cl. welchii* was improved about fourfold.

The improvement in growth is not due to increase in acidity of the medium in the CO_2 atmosphere. The viability of the strain in absence of 10 per cent. CO_2, on nutrient agar plates adjusted to pH 7·0, 6·5, and 6·0, was similar to that on agar at pH 7·5; it was very slightly depressed on agar at pH 5·5. Carbon dioxide does not increase the oxygen tolerance of the organism; the anaerobic growth in 10 per cent. CO_2 was entirely inhibited by an oxygen tension of 20 mm. Hg.

Horse blood is hæmolysed. Peptone water sugars and heart broth sugars are not fermented. Heart agar deeps, with sugars and Andrade's indicator incorporated, are split by gas, with the production of acid; readily with sucrose and mannite, less readily with maltose and salicin, feebly with glucose, and not at all with lactose. Litmus milk is rendered feebly acid. Inspissated serum, and gelatin, are not liquefied within 15 days.

Cooked-meat medium is neither blackened nor obviously digested, but growth is accompanied by the evolution of gas and a copious deposit of needle- and plate-like crystals.

TOXIN PRODUCTION IN DOMESTIC CONDITIONS

The majority of cases of botulism arise from the ingestion of tinned food, or of closely packed meats, in whose depths anaerobic conditions probably obtain. In the present instance the toxin developed in the small remnant of an open meat pie, consisting of large granules of mincemeat, apparently loosely packed enough to allow penetration of sufficient oxygen into its depth to destroy the strict anaerobic conditions that the organism requires.

Members of the *Clostridium* group of spore-bearing anaerobes will not grow in plain broth to which oxygen has access, but the addition of cooked-meat granules to the broth allows growth. The granules mechanically prevent convection currents in the fluid, thereby hindering the penetration of atmospheric oxygen into its depths. Lepper and Martin (1929 and 1930) have shown that the essential change that occurs with this addition is the establishment in the culture medium of a reducing system of sufficient intensity to allow anaerobes to germinate. The exclusion of oxygen, practised in the anaerobic jar technique, is one means of achieving this state. In addition, the unsaturated fatty acids in the lipins of the meat fix oxygen under the catalytic influence of the hæmatin, and other reducing substances in the cooked meat help to establish the requisite degree of reducing power. Similar degrees of reducing power are produced in plain broth by the growth of aerobic organisms, such as staphylococci, pneumococci, and the diphtheria bacillus (Hewitt, 1930), and strict anaerobes are able to germinate in open broth cultures containing such aerobic organisms.

The half-opened meat pie was made of cooked-meat granules; since these were not immersed in fluid, but were exposed freely to air, the conditions were not strictly comparable with those in a tube of cooked-meat medium. The strain of *Cl. botulinum* eventually isolated was strictly anaerobic, and can only have germinated if the ingredients of the pie provided a medium of sufficient reducing power, with or without the help of an aerobe to produce initial reduction of the medium. The possibility that symbiosis with aerobes might allow *Cl. botulinum* to germinate and produce toxin in aerobic conditions was recognised by van Ermengen in 1897, and both Hall and Peterson (1923) and Francillon (1925) have studied toxin production by the organism in the presence of several aerobes. Staphylococci, streptococci, *Proteus vulgaris*, and *B. subtilis* favoured growth and toxin production while the highly fermentative *Salmonellas*, for example, were in part inhibitors of both; this inhibition was much less in cooked meat than in plain broth cultures. The aerobic cultures of the pie-dish rinsings yielded abundant growth of the strain M. 90 which is an organism best classified as an atypical *Proteus*. Cannon, Cohen, and Clark (1926) have shown that cultures of *Proteus vulgaris* are not capable of reaching high reducing intensities. However, Dean has produced potent tetanus toxin by growing *Cl. tetani* in symbiosis with an aerobic culture of a *Proteus*-like organism. Accordingly the strain M. 90 was used in tests of aerobic toxic production by *Cl. botulinum*. It proved capable of producing a filtrable toxin itself, lethal to mice on the intraperitoneal injection of 0·05 c.cm., and was discarded as unsuitable since the botulinum toxin titration in mixed cultures was rendered difficult. It did not enhance toxin-production. The strain of a non-toxinogenic white staphylococcus was, therefore, used as the aerobe in the following experiments.

Two conical 1-litre flasks were covered to the depth of 2·5 c.cm. with broth and cooked meat and inoculated with *Cl. botulinum*. One received, in addition, an inoculum of the staphylococcus. The flasks were incubated at 30° C. for four days and the toxicity of Seitz-filtrate samples were tested. Both filtrates contained about 3000 mice m.l.d. per c.cm. The coccus had not helped toxin production and the botulinum cooked-meat culture was evidently toxinogenic in the presence of atmospheric oxygen.

The test was made more stringent by closely simulating the conditions in which the toxin was originally formed. Two artificial pies were constructed, as in the Figure. Cooked mincemeat was loosely piled in one half of small enamel pie-dishes (1½ pint capacity), which were covered with about 20 c.cm. of broth to the depth of 3 mm. A thin cover of cotton-wool between two layers of butter muslin was pierced to admit a tube for inoculation and sampling. One pie received botulinum and the other botulinum plus coccus; the botulinum inoculum was the spun deposit of a two-day cooked-meat culture. After four days at 30° C., a 12 c.cm. sample from each was spun, Seitz-filtered, and titrated in fivefold dilution for toxicity; botulinum alone yielded 3000 m.l.d. per c.cm.; botulinum and coccus, 1200 m.l.d. per c.cm. Culture revealed no organism in the pies other than those inoculated.

A further test was made to exclude the possibility that the toxin finally titrated was contained in the spun deposit originally inoculated. A test pie set up with 25 c.cm. of broth was inoculated with 0·2 c.cm. of spun deposit of culture, and rocked to ensure thorough mixing. Then 12 c.cm. were withdrawn, filtered, and titrated. The rest was incubated for six days. The pie was found

almost dry at the end of this time, with no free fluid. The meaty mass, which was loosely packed and readily friable, was washed with broth for five minutes. The volume that drained from the meat was 28 c.cm. This, after filtering, was found to contain 3000 m.l.d. per c.cm. The original broth, of which about 12 c.cm. were left in the dish, contained 20 m.l.d. per c.cm. The increase in toxin even in these apparently adverse conditions was therefore

$$\frac{3000 \times 28}{20 \times 12} = 350\text{-fold.}$$

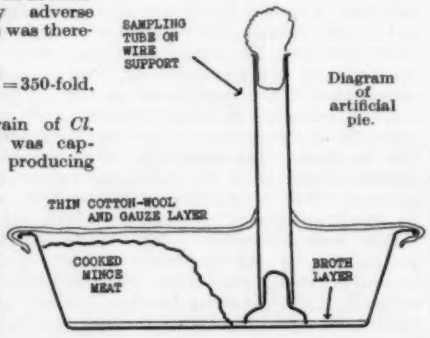

Diagram of artificial pie.

The strain of *Cl. botulinum* was capable of producing small amounts of toxin in aerobic broth cultures in the presence of the staphylococcus. Four wide (1¼ inch) test-tubes, containing 30 c.cm. of plain heart broth, were inoculated with *Cl. botulinum* and two of them with the coccus. Filtrates from the botulinum cultures were non-toxic after two and four days. The two-day botulinum plus coccus culture contained about 4 m.l.d., neutralisable by specific antitoxin, but the four-day culture was non-toxic.

CONCLUSION AND SUMMARY

The clinical history and post-mortem findings in this case resemble those commonly reported in botulism; the gall-stone was probably responsible for the indigestion of which the patient had complained for some years. The bacteriological examination of the suspected food—an open meat pie—confirmed the diagnosis, and yielded a strain of *Cl. botulinum* producing a Type B toxin. This is the first recorded instance of a Type B strain producing botulism in England. The potency of the toxin it produced in the pie was evidently high, since the tap water used to rinse out the empty pie-dish contained considerable amounts of toxin.

The strain grows poorly, and is feebly proteolytic and saccharolytic. Its anaerobic growth is greatly improved by the addition of 10 per cent. carbon dioxide to the atmosphere in the jar, and it is suggested that incubation in this atmosphere be included in the routine procedure for the isolation of *Cl. botulinum*.

Francillon (1925) showed that a pure aerobic culture of Type A botulinum produced toxin in test-tubes of wet mincemeat. The experiments quoted above demonstrate quite clearly that the Type B strain isolated is toxinogenic in relatively dry mincemeat, exposed even more freely to air, without the aid of symbiotic aerobes that is usually postulated as a necessary factor in the aerobic growth of *Cl. botulinum* in domestic conditions.

We are grateful to Dr. H. A. Nathan for his account of the patient's condition before admission.

REFERENCES

Burke, G. S.: Jour. Bact., 1919, iv., 555.
Cannan, R. K., Cohen, B., and Clark, W. M.: U.S. Pub. Health Rep., 1926, Suppl. 55.
Dack, G. M., Starin, W. A., and Werner, M.: Jour. Infect. Dis., 1927, xl., 525.
Dean, H. R.: Personal communication.
Francillon, M.: Zeits. f. Hyg., 1925, xcv., 121.
Hall, I. C., and Peterson, E.: Jour. Bact., 1923, viii., 319.
Hewitt, L. F.: Biochem. Jour., 1930, xxiv., 676.
Kitcat, C. de W.: Brit. Med. Jour., 1935, ii., 580.
Lane, C. R., and Jones-Davies, T. E.: THE LANCET, 1935, ii., 717.
Lepper, E., and Martin, C. J.: Brit. Jour. Exper. Path., 1929, x., 327; 1930, xi., 137.
Rockwell, G. E.: Jour. Infect. Dis., 1924, xxxv., 581.
Templeton, W. L.: Brit. Med. Jour., 1935, ii., 500.

"SPECIFIC" AND NON-SPECIFIC TREATMENT OF BOILS

WITH SPECIAL REFERENCE TO THE RESULTS OF TREATMENT BY STAPHYLOCOCCAL TOXOID*

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STAPHYLOCOCCAL vaccines, whether polyvalent or autogenous, have been used for many years in the treatment of boils. While dramatic successes are apparent in a proportion of cases, in many others the treatment has proved disappointing. Most dermatologists and practitioners, while admitting their apparent usefulness in some cases, have ceased to regard them as reliable.

Within the last few years attempts have been made to confer a more certain immunity by the injection of a formalinised staphylococcal exotoxin, which is hereafter described by its conventional abbreviation "toxoid." The results from this form of therapy have been reported by various workers.[1-10] Some of these have reported large series of cases, but only one has attempted a critical comparison between the results following the treatment of boils with toxoid and those obtained by other methods. Ferguson Smith,[9] who made this comparison, reported unfavourably on toxoid treatment. The earlier claims that pustular acne and sycosis barbæ could be greatly improved or cured by the use of toxoid have not been substantiated by later workers. Whitby,[8] however, in a recent paper, describing 200 treated cases, believes that toxoid has proved useful in the treatment of boils, styes, and carbuncles.

Staphylococcal infections of the skin comprise a variety of clinical phenomena, in each of which the primary lesion is always a pustular infection of the hair follicle. Dependent on the site, intensity, and multiplicity of such infection, there results a "boil," "stye," carbuncle, blepharitis, or sycosis barbæ. These lesions are all too familiar to require definition. Conditions showing more or less clinical resemblance to these lesions may arise from infection by other organisms. Some of these, such as pustular ringworm, papulonecrotic tuberculides, &c., may be secondarily infected by the staphylococcus. In the selection of cases for trial of a new form of specific therapy, it is therefore necessary not only to investigate the bacteriology, but also to consider critically the clinical evidence for and against a primary staphylococcal infection.

TREATMENT OF STAPHYLOCOCCAL INFECTIONS OF THE SKIN WITH TOXOID

At St. Bartholomew's Hospital, 20 cases of sycosis and 13 cases of recurrent boils have been treated with toxoid. In each of these, *Staphylococcus aureus* was demonstrated in pus and was cultivated.

Technique.—The staphylococcal toxoid used throughout this series was kindly supplied by the Wellcome Physiological Research Laboratories. Two batches of toxoid, B.8300 and B.8811, were used. The antigenic activity of the two batches, as measured by the antihæmolysin content of the blood-serum, appeared to be similar. The initial dose was either 0·05 or 0·1 c.cm. This was gradually increased up

* A report to the Therapeutic Trials Committee of the Medical Research Council.

to a maximum dose of 1·0 c.cm. Injections were carried out at weekly intervals, and the rate of increase of the dosage varied with the clinical condition of each patient. The total dosage given ranged from 1·0 to 9·4 c.cm. The intramuscular route provoked less intense local reactions than the subcutaneous route and was therefore used (after the first few injections) throughout the series. In only two cases was there any general reaction. These patients complained of fever, headache, and loss of appetite till 24 hours after injection.

The antihæmolysin titre of the blood-serum was measured before beginning treatment and at intervals during and after treatment. In all cases this titre rose after the injection of toxoid. The extent of the rise varied considerably, but seemed to bear no relation to the clinical condition of the patient.

Results.—It has been claimed by several workers [2 6] that sycosis of staphylococcal origin is cured or relieved by injections of toxoid. This condition, although often exhibiting temporary remissions, is commonly resistant to other methods of treatment. It therefore seems reasonable to give toxoid the credit for any substantial improvement which followed its use in such cases.

The investigation, accordingly, began with the treatment of 20 cases of sycosis by toxoid. *No single case, however, showed any definite improvement.* This finding agrees with the observations of Forman [8] and of Whitby.[10] In spite of this failure, it seemed desirable to test the results of this treatment for recurrent boils. Thirteen patients were treated, as described above. Only 4 of these became free from boils and 2 soon relapsed. Of these 2, 1 was found to have numerous acne comedones on the back of the neck, and has remained free from boils since having a single dose of X rays to this region. The other man had improved under toxoid treatment, but it transpired later that he had been 12 weeks away from his work which involved constant contamination with machine oil. On his return to work the boils reappeared.

Neither the absolute amount of circulating antihæmolysin nor its relative increase during treatment appeared to carry any prognostic significance. This agrees with the view of Whitby [10] but conflicts with that of Murray.[4]

COMPARATIVE VALUE OF "NON-SPECIFIC" TREATMENT

The practical difficulties involved in running strictly parallel series of cases are obvious and have been underlined by those who have written favourably of toxoid treatment, without such controls. It was felt, however, that the investigation of the after-histories of a series of cases treated by non-specific methods might be of some comparative value. It seemed desirable, for the sake of simplicity, to exclude cases of styes and carbuncles.

During the years 1933 and 1934, of 9000 new cases seen in the skin department at St. Bartholomew's Hospital, 104 cases were recorded as suffering from boils. This diagnosis excluded, of course, the large number of cases of boils secondary to such common conditions as scabies and lichen urticata. In 3 cases the case-notes with the patient's address were missing, leaving 101 cases for the purposes of this investigation. Two of these patients received treatment by injection of toxoid towards the end of 1934 but, with these exceptions, no "specific" therapy was employed for any of our cases during these two years. Local antiseptics, with general carbon-arc irradiation and/or X ray treatment in cases of recurrent localised infections, were the therapeutic methods employed.

In April, 1935, an attempt was made to re-examine all those so treated, to determine what proportion had since remained free from boils. Only 27 cases, however, attended, all of whom reported complete freedom since treatment. Letters were then sent to those not re-examined, requesting a categorical statement, viz. :—

I have had / I have not had boils since having treatment in the Skin Department at St. Bartholomew's Hospital.

Twenty-one cases were excluded from the scope of the investigation for the following reasons :—

Letters returned* ..	10	Folliculitis of scalp ..	2
Died	1	"Never had boils" ..	1
Cases treated with toxoid	2	Boils with eczema — "rash still present" ..	1
No reply after 3 requests to each	3	Case not treated ..	1

* Marked "O.H.M.S." : "House demolished," "Gone away," "Unsafe to approach owing to dog."

This leaves 79 cases for analysis, the results of which may be summarised as follows :—

Complete freedom from boils	examined .. 27 / report .. 39	66	= 95%
Great improvement		9	
Boils persist		4	= 5%

The patients' own comments give a useful idea of the degree of improvement experienced. Most of these cases were free from boils after some weeks' regular treatment but relapsed after it was discontinued. (See Table.)

Analysis of Nine Cases "Greatly Improved"

Case	Age.	Site.	Concomitant disorder.	Treatment.	Report 2–3 years after treatment.
1	18	Neck and arms.	—	X ray only once. No U-VL.	"Four boils since treatment which was very good."
2	38	Back.	Diabetes.	X rays and U-VL local.	"One or two since but infinitely milder and less frequent."
3	12	—	—	General U-VL.	"Last boil in 1933."
4	46	—	Rosacea.	General U-VL.	"Only one boil but a few matter spots."
5	23	Axillæ.	—	X ray ½ B. (5).	"Few boils after treatment, but cleared up altogether after taking Stannoxyl."
6	24	Face.	—	U-VL.*	"One bad boil only."
7	21	Face.	Acne vulgaris.	X ray ½ B. (3) and local U-VL.	"Not so frequent or so bad."
8	23	Neck.	—	X ray ½ B. (3).	"Had a kind of boil on eyelid."
9	21	Face.	Seborrhœa.	X ray ½ B. (1).	"Some boils occasionally but not of serious nature."

* Discontinued treatment. U-VL = Ultra-violet light.

All of the 4 cases in which boils persisted were chiefly affected on the back of the neck and those 3 patients who reattended were all found to have an underlying cutaneous disorder. Of these 3, one has now been clear for six months without having had any special treatment; another has improved sufficiently to make him reluctant to undergo further treatment; and another writes that "business is too busy" at present for further treatment.

DISCUSSION

The assessment of the value of any single remedy applied more or less indiscriminately to cases of recurrent boils presents peculiar difficulties. It is probably statistically unimportant that a small number of non-staphylococcal cases may be included in a large series. It is impossible, however, to make allowances for the well-recognised and extreme variability in the character and duration of this affliction. Not only may a single boil be followed by no further infection, but not rarely a long series of boils eventually terminates without any apparent relation to treatment. After an interval of freedom for months or years, boils tend to recur in some subjects.

Freedom from infection, whether of short or long duration, may be due to a reduction in the virulence or numbers of staphylococci on the skin, or increased immunity of the follicular epithelium. The relationship between the "normal" staphylococci of the skin and the "pathogenic" *Staphylococcus aureus*, in spite of much recent work, is not yet clear. It is probable, however, that the follicular epithelium varies in different persons and at different times in its susceptibility to infection.

The termination of a series of boils is often ascribed to the results of treatment by compounds of iron, arsenic, calcium, tin, various forms of yeast and other nucleic acid derivatives, the use of stock or autogenous vaccines, the intramuscular injection of manganese or of the patient's own blood. (This does not attempt to exhaust the list of empirical remedies.) It seems possible that so many remedies have been recommended for recurrent boils because spontaneous remissions are so frequent.

Boils not infrequently cease to appear after a course of injections of many different kinds. Manganese, whole blood, vaccines, and toxoid have each been credited by different observers with good results.

The introduction of toxoid for the treatment of staphylococcal infections was based on the protection given by the corresponding antitoxin to rabbits, against lethal doses of staphylococci. But the conditions obtaining in human skin infections are hardly comparable to those present in these experiments. It has in fact been found that no clinical improvement (in the skin) may result even when the antitoxin (as measured by the antihæmolysin) content of the patient's serum has been greatly increased by toxoid. In these circumstances it is perhaps more reasonable to attribute any clinical improvement which does occur after toxoid to the "non-specific shock" effect which it shares with other injections, rather than to any specific "antistaphylococcal" mechanism. Further, the fact that the antihæmolysin titre of the serum can be greatly increased without clinical benefit should make one cautious of expecting better therapeutic results from the use of toxoid derived from more potent or multiple strains of staphylococci.

RATIONAL TREATMENT OF RECURRENT BOILS

The continued recurrence of boils is dependent in most cases on underlying factors. Treatment directed towards the removal of such conditions is therefore not only rational but usually highly successful. The outlines of such treatment may be briefly indicated as follows:—

1. The removal of local sources of mechanical friction and secondary reinfection (hot fomentations, mechanical appliances, infected clothing, &c.).
2. The removal of substances obstructing the opening of the follicles (dirt, oil, acne comedones, &c.).
3. The treatment of septic foci (dental abscess, antral infection, &c.).
4. The treatment of underlying cutaneous disorders (acne vulgaris, seborrhœa, lichen urticata, eczema, scabies, pediculosis, pruritus, &c.).
5. The treatment, when present, of hyperglycæmia, anæmia, malnutrition, &c.
6. Some cases appear to be associated with anxiety or "overwork." It is often impossible to separate the physical and psychological factors concerned. Increased fresh air and sunshine or a long holiday may be followed by remissions. So many cases, however, improve following general ultra-violet light baths that it seems probable that the immunity of the skin to the staphylococcus is in some way increased by the treatment.
7. X ray treatment is of great value in the case of axillary boils, and those confined to the face, neck, and other areas commonly affected by acne vulgaris. This is the most reliable method of diminishing the excessive sebaceous and horny secretions responsible for these conditions. The retention of these products in the follicles invites recurrent infection by the staphylococcus.

SUMMARY AND CONCLUSIONS

(1) Clinical experience indicates that the best treatment for recurrent boils lies in the removal of the underlying cause. Local and, less often, focal or general disorders are present in a large proportion of cases. The treatment of these disorders is not only essential for success, but often alone suffices to prevent recurrence.

(2) The virtue of any "specific" treatment for recurrent boils is peculiarly difficult to assess owing to the irregular character of this affliction.

(3) The reinvestigation of 79 cases, treated by non-specific methods (especially general ultra-violet light baths and X rays) 2–3 years earlier, indicated serious persistence in only 3 cases, in all of which there was an underlying chronic skin disorder. "Resistant" cases are therefore uncommon.

(4) The results obtained by the use of toxoid in a small series of cases (20 cases of sycosis and 13 cases of boils) were not sufficiently encouraging to justify a continued trial.

(5) The injection of staphylococcus toxoid constantly increased the circulating antihæmolysin. There was no evidence, however, that this increase had any clinical value.

(6) One is led to conclude that toxoid has no evident advantage over the use of "non-specific" antigens or other treatments for multiple boils. No direct comparison between the results obtained by non-specific injections and those following the use of toxoid have been published by any of those who advocate its use.

For all the pathological investigations mentioned in this report I am greatly indebted to my colleague, Dr. A. Q. Wells. I am also much indebted to Dr. A. C. Roxburgh, physician-in-charge of the skin department at St. Bartholomew's Hospital, for his permission to carry out this investigation and for his helpful encouragement.

REFERENCES

1. Panton, P. N., and Valentine, F. C. O.: THE LANCET, 1932, i., 506.
2. Dolman, C. E.: Jour. Amer. Med. Assoc., 1933, c., 1007.
3. Whitby, L. E. H.: THE LANCET, 1934, ii., 779.
4. Murray, D. S.: Ibid., 1935, i., 303.
5. Dolman, C. E.: Ibid., 1935, i., 306.
6. Connor, J. I., and Mackie, M.: Brit. Jour. Derm. and Syph., 1934, xlvi., 20.
7. Ramon, G., Bocage, A., Richon, R., and Mercier, P.: Presse méd., 1936, xliv., 281.
8. Forman, L.: Deliber. Ninth Intern. Congress Dermat. (Budapest) (1935), 1936, vol. ii., p. 628.
9. Ferguson-Smith, J.: Brit. Jour. Derm. and Syph., 1936, xlviii., 84.
10. Whitby, L. E. H.: THE LANCET, 1936, i., 1454.

PALPITATION

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THE symptoms of palpitation, left inframammary pain, and sighing respiration have been termed by Gallavardin[1] "le trépied," and they are commonly found in association. Any one of these symptoms is frequently interpreted by the patient, and at times by the doctor, as significant of some diseased condition of the cardiovascular system. The absence of evidence that inframammary pain and sighing respiration are indicative of cardiovascular disease, and their relatively trivial importance has been the subject of previous communications[2,3]; it remains to attempt to estimate the importance of palpitation as a symptom.

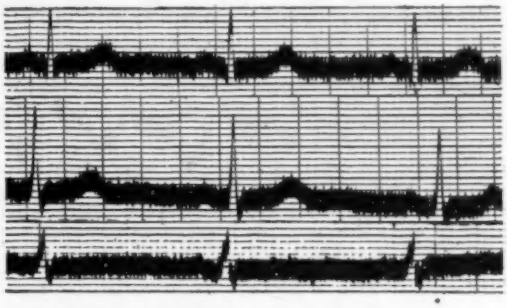
This investigation had two main objects: first, to determine what the symptom is likely to denote when the patient who gives it as a primary complaint shows on ordinary clinical examination no clear evidence of organic heart disease. Can it be safely ignored or in view of its association with certain conditions should these be excluded before the symptom is disregarded. Secondly, if it should appear that a considerable number of patients with normal cardiovascular systems give palpitation as their chief complaint, to evolve if possible a clinical syndrome which would allow this type of case to be readily recognised.

The following conclusions have been arrived at by two different methods—a clinical study of patients suffering primarily from palpitation, and a statistical survey of a consecutive series of out-patients attending the National Hospital for Diseases of the Heart and of a series of children attending three rheumatism supervisory centres.

Palpitation as a Symptom

At the outset it was essential to find an adequate definition of palpitation and also it was necessary to discover what the patient means when he or she complains of this symptom. The most satisfactory definition was found in Paul White's book on heart disease,[4] "Palpitation (from the Latin, palpitare—to throb) is the consciousness of the heart's action, whether fast or slow, regular or irregular; it is generally a disagreeable sensation; sometimes, in a sensitive person it is very distressing." The patient's interpretation was by no means so straightforward, and a surprising variety of sensations were termed palpitation; it was used to describe beating in the chest, the throat, the heart, eyes or ears, and sometimes more remotely abdomen, fingers, and toes or "fluttering in the chest," a pounding, throbbing, thudding sensation, and in the case of extrasystoles, the heart might be said to "turn over." The character of the beat is just as varied and can equally well be frequent or infrequent, regular or irregular. Not uncommonly a symptom entirely apart from the heart is termed palpitation, for example a patient who, complaining of palpitation and being asked to describe her symptom, said "I can't kind of breathe, then I get the wind." Clearly then it is of first importance to make the patient describe the symptom, and not to accept it without question or analysis. Sometimes a clue to the nature of the disorder can be gained from the description: a continuous palpitation has a different significance from one "felt at times," a beating which starts and ends abruptly is most likely to be paroxysmal tachycardia, and such descriptions as "the heart turning over," "giving a jump," or "seeming to stop' usually indicate extrasystoles. An interesting point and a problem for the psychologist is the variation in the patient's consciousness of the heart's action. A patient with a large hypertrophied forcible-beating heart may be completely unconscious of the beat and another quite unaware of the presence of a gross irregularity; in great contrast is the patient who with a quiet and regularly beating heart is resentfully and continually aware of its action, for example (Case 3) who said that he felt pulses all over the place.

FIG. 1



CASE 1.—Single woman, aged 32. Pulse-rate 65. She complained that her heart was "thudding" while this tracing was being taken. A normal electrocardiogram.

Results of Statistical Survey

As a result of the preliminary analysis of the case-sheets of 900 consecutive patients attending the out-patient department of the National Hospital for Diseases of the Heart, the following facts emerged:—

1. A considerable number of patients who gave palpitation as a primary symptom had on examination a normal cardiovascular system (Figs. 1 and 3).

2. Of those who gave palpitation as their chief complaint and who on examination were found to be suffering from diseases of or disorders affecting the cardiovascular system, the majority were found to be suffering from one of three conditions: (1) Hypertension (only those with systolic pressures of 180 mm. Hg and over were selected). (2) Thyrotoxicosis. (3) Paroxysmal tachycardia.

3. Very few patients suffering from rheumatic valvular disease gave palpitation as their chief complaint. Since rheumatic valvular lesions were found on analysis to be the commonest cardiovascular condition met with in hospital practice this observation seemed of interest (Fig. 4).

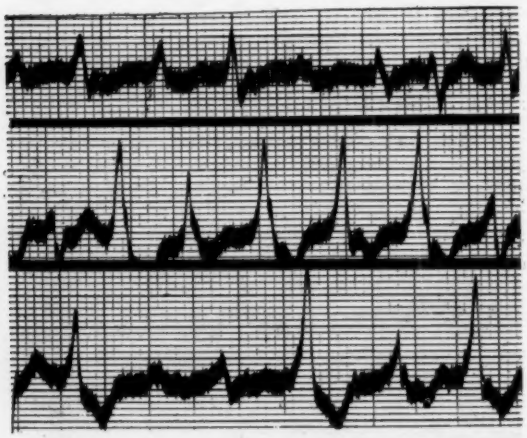
Other minor points were:—

4. Extrasystoles did not appear of necessity to produce the symptom of palpitation; many patients seemed quite unconscious of this irregularity when it was present—e.g., Case 2 (Fig. 2).

5. Palpitation was a rare complaint in childhood.

A further 1004 cases were then analysed in order to establish these facts. In this second investigation the three conditions hypertension, thyrotoxicosis, and paroxysmal tachycardia were considered as a group—Group X. This grouping was the more satisfactory in that all three represented general conditions with the cardiovascular system secondarily affected, not primary cardiovascular disease.

FIG. 2



CASE 2.—Married woman, aged 37. She was quite unconscious of the heart-beat, and said she did not know why she had been sent to hospital. Electrocardiogram shows multiple extrasystoles.

As the result of the second analysis, it was found that 163 of the 1004 patients (16 per cent.) gave palpitation as their primary complaint. Of these, 74 (45·4 per cent.) were on examination found to be normal, and 89 (54·6 per cent.) were suffering from some cardiovascular condition; it was therefore nearly an even chance that a patient with palpitation as chief symptom would have a normal cardiovascular system. Of the 89 abnormal patients 21 (23·6 per cent.) had thyrotoxicosis, 24 (27 per cent.) hypertension, and 23 (25·8 per cent.) paroxysmal tachycardia. It thus was equally likely that the abnormal patient would be suffering from either thyrotoxicosis, hypertension, or paroxysmal tachycardia. Taken as a whole Group X represented 68 (76·4 per cent.) of the abnormal cases. Of the remaining 21 (23·6 per cent.), 14 (15·7 per cent.) had rheumatic valve lesions and 7 (7·9 per cent.) some other condition; these were therefore much more likely to have one of the conditions in Group X than rheumatic valve lesions. This was demonstrated more impressively when it was found that of the 551 patients who had abnormal cardiovascular systems 209, or nearly 38 per cent., had rheumatic valve lesions; a big proportion of all cases, and 14 (6·7 per cent.) of these 209 patients gave palpitation as a primary symptom.

It was interesting to find from 900 records that of 28 cases of thyrotoxicosis all but 2 (93 per cent.) complained primarily of palpitation, of 15 cases of paroxysmal tachycardia all had palpitation as a primary symptom, whereas of 87 cases of hypertension only 34 (39 per cent.) gave palpitation as their chief symptom.

On analysing the cases found to have extrasystoles, it appears that an appreciable number of people can have palpitation without extrasystoles, and that an equal number have extrasystoles and are not conscious of the irregularity—that is, the presence of the one does not denote the presence of the other.

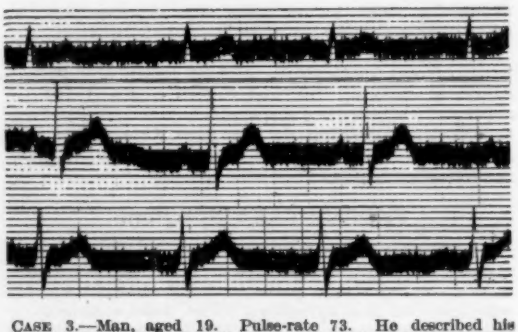
Of the children attending as out-patients at the National Hospital for Diseases of the Heart it was found that up to the age of 16, whether they had cardiovascular lesions or not, they were very unlikely to complain of consciousness of the heart; only 10 (7·2 per cent.) of the 138 cases made this complaint. In a series of 1000 attending rheumatism supervisory centres an even smaller proportion (0·5 per cent.) complained of this symptom. This apparent discrepancy can be understood if it is remembered that, whatever the age or sex, pain takes precedence of all other symptoms, and those who come to the supervisory centres generally do so because of rheumatic pains; on the contrary, the children attending the National Hospital for Diseases of the Heart do so as a rule because of suspected or established heart disease. It seems therefore that consciousness of the heart's action is almost exclusively a symptom of adult life.

Ætiology

From the statistical survey it is clear that thyrotoxicosis, hypertension, and paroxysmal tachycardia can give rise to palpitation as a primary symptom. Apart from these clinical conditions, the explanation of the symptom in a large proportion of persons with normal cardiovascular systems will have to come from the psychologist, since in so many awareness of the heart-beat seems to depend on abnormal sensitivity on the part of the individual. There are, however, a number of minor causes of palpitation, which if appropriately treated would give relief from the symptom.

Indigestion, particularly flatulent indigestion, and more especially in the stout patient, a symptom often worse in the evening and in bed at night and aggravated by physical and mental fatigue.

FIG. 3



CASE 3.—Man, aged 19. Pulse-rate 73. He described his sensations as "a deep thud" and said he felt "pulses all over the place" while the tracing was being taken. A normal electrocardiogram.

Obesity, frequently in the type associated with the menopause in women, and possibly aggravated by the upward displacement of the heart by a high diaphragm.

Debility following an illness, especially in influenza, typhoid fever, and following a surgical operation.

Menopause.—In these patients in addition to the degree of ill-health which may be present at this time there may also be a tendency to obesity and hypertension.

Food and drink, more particularly excessive tea-drinking, coffee, alcohol, and such foods as peas, beans, newly baked breads and cakes.

Smoking, more commonly associated with excessive cigarette smoking and inhalation of the smoke.

Fatigue.—It seems doubtful whether healthy fatigue can cause palpitation; rather is it the exhaustion which accompanies nervous and general ill-health which is responsible for the symptom.

Neurocirculatory Asthenia, or the effort syndrome; Lewis [5] has said: "Palpitation or consciousness of the heart-beat is a frequent symptom."

Anxiety.—Nervous excitement, fright, mental upset, especially in hypersensitive people, would be very liable to cause palpitation.

Infective foci, as for example infected tonsils or teeth; as a result of the accompanying nervous debility and ill-health.

Clinical Complex in Cases Unassociated with Organic Disease

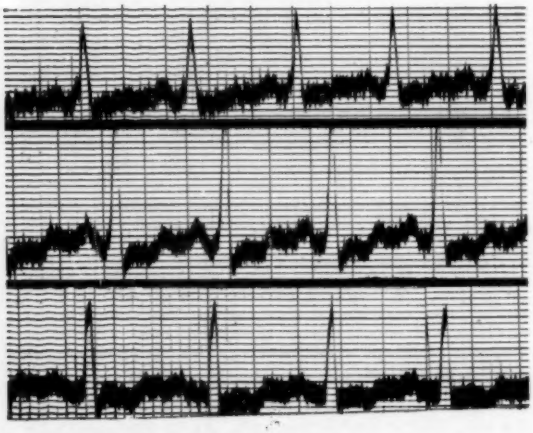
It was found that when palpitation is the chief complaint in a patient who is organically sound it is rarely an isolated symptom, but one of a mixture of general and local manifestations whose particular characteristic is their multiplicity. Of these other complaints two are almost invariably present, left inframammary pain and sighing or "suspirious" breathing. The pain is characterised by its gradual onset and its duration, which may be weeks or months, with intermissions; it can extend to the left scapular region and is often accompanied by hyperæsthesia. It is commonly either sharp and shooting or dull and aching, and has no direct relation to exertion. The sighing respiration is definitely disagreeable in that the end of each inspiration is accompanied by a sense of effort as against obstruction, "difficulty in taking a deep breath"; expiration is easy; this symptom also has no direct relation to exertion. Other symptoms include exhaustion, and an exaggerated form of fatigue unaccompanied by a sense of relief and relaxation when resting and entirely unrelated to the degree of exertion undertaken, felt at any time, equally on getting up in the morning as towards the end of the day.

The patient complains also of weakness, faintness, dizziness, disturbed sleep, pains in various parts, tremblings, and other expressions of a nervous order. The case which follows gives the characteristic picture.

A married woman, aged 54, attended the out-patient department of the Elizabeth Garrett Anderson Hospital in September, 1935, complaining of attacks of palpitation, recurring during the last five months. Other complaints were "difficulty in getting a really good breath," pain under the left breast, "like a knife," which shot round to the left shoulder-blade, a choking sensation in the throat and a feeling that she could not swallow. In an attack she would begin to tremble; the symptoms would then cease, but be followed by great weakness and exhaustion. She also had a fear of being alone and difficulty in getting to sleep.

On examination she was a well-nourished woman; pulse-rate 72, regular; blood pressure 130/75 mm. Hg. Nothing abnormal in the cardiovascular system; urine normal; electrocardiogram normal; tonsils unhealthy and tonsillar glands enlarged.

FIG. 4



CASE 4.—Man, aged 28. Pulse-rate 120. A large heart with rheumatic aortic regurgitation. He was entirely unconscious of the heart-beat.

Diagnosis and Discussion

The clinical complex almost invariably present in patients with normal cardiovascular systems who complain primarily of palpitation should make it possible to distinguish readily this form from that which accompanies hypertension, thyrotoxicosis, and paroxysmal tachycardia, apart from the added clinical signs that may be present in these diseases. When there is doubt it is advisable to have an electrocardiogram taken, preferably during an attack, since the possibility of paroxysmal fibrillation or flutter cannot be ignored and it should always be borne in mind that a patient with organic disease may in addition be prone to nervous symptoms. When thyrotoxicosis and hypertension have to be excluded other methods of examination, such as the estimation of the basal metabolic rate and the use of the X ray screen and sphygmomanometer, should help to determine the ætiology.

Finally, from these investigations it seems that when palpitation is a symptom of organic disease it is very rarely an indication of any primary disease of the heart or vessels, but rather that of a general condition which affects secondarily the cardiovascular system. In the rare cases where it is associated with primary heart disease it is usually produced as a result of an alteration in rhythm, as for example the onset of auricular fibrillation, flutter, or, less often, of partial or complete heart-block.

Summary and Conclusions

As a result of a statistical and clinical study of a large group of patients it appears that palpitation can be the main symptom in patients without physical signs of cardiovascular disease. In these cases it is associated with a diffuse array of complaints expressive of physical and nervous exhaustion. It can also be a chief complaint in patients suffering from thyrotoxicosis, hypertension, or paroxysmal tachycardia, but the clinical picture is different and there are the added signs and symptoms associated with these diseases. It is rarely the primary complaint of patients suffering from rheumatic valvular disease, which is further shown to be the commonest heart condition met with in hospital practice. It is shown in connexion with palpitation as a symptom that many patients can have extrasystoles and be entirely unconscious of the irregularity. The symptom is common in adult life and rarely a complaint of childhood. The possible ætiology in those cases unrelated to organic disease is discussed and the associated clinical complex illustrated by a typical case.

I am indebted to Dr. John Parkinson for his invaluable criticism and for providing facilities for this investigation, and to Mr. A. Bradford Hill, D.Sc., for his advice and help with the statistical section.

REFERENCES

1. Gallavardin, L.: Jour. de méd. de Lyon, 1933, xiv., 556.
2. Baker, Doris M.: THE LANCET, 1930, i., 1280.
3. „ „ „ : Ibid., 1934, i., 174.
4. White, Paul D.: Heart Disease, New York, 1931, p. 25.
5. Lewis, T.: The Soldier's Heart and the Effort Syndrome London, 1918, p. 16.

CASE OF IDIOPATHIC STEATORRHŒA WITH MULTIPLE NUTRITIONAL DEFICIENCIES

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In this country frank evidence of disease attributable solely to dietary deficiency is comparatively rare. Ophthalmia due to vitamin-A deficiency, beri-beri, pellagra, and scurvy are diseases which are seldom met with in any class of practice, and even rickets, once very prevalent in a severe form, is now much less frequently seen, and then usually only in a mild degree. It is evident that the diets of even the poorest classes are sufficient to prevent the onset of manifest deficiency disease, so long as excessive demands or other factors tending to produce a "conditioned" deficiency are not present. This is well shown by the fact that while a daily intake of iron of less than 10 mg. is frequent among the poor, anæmia is rare in adult males in the absence of organic disease, but is very frequent in adult females owing to the excessive demands for iron caused by menstruation and repeated child-bearing.[1 2] It is important to realise that a diet which is adequate in ordinary circumstances cannot be considered optimal unless it provides a surplus of essential food elements, sufficient to cover emergency periods of increased demands.[3]

There is, however, one group of diseases in which evidence of multiple deficiency is frequently seen. This group has recently been rendered prominent by the publications of Thaysen[4 5] and of Bennett, Hunter, and Vaughan.[6] It comprises cœliac disease, idiopathic steatorrhœa (non-tropical sprue), and tropical sprue. Here the manifestations of the disease are believed to be due, not to a deficient intake of essential food elements, but to a failure in their absorption from the intestine. It should be pointed out, however, that in sprue, particularly, a defective diet may be responsible for the altered condition of the gastro-intestinal tract, which leads to diminished absorption and renders manifest deficiencies which may for long have been latent.[7]

A single case of idiopathic steatorrhœa is here reported, because of the unusually large number of deficiencies which were demonstrated by clinical, chemical, and hæmatological examination.

CLINICAL REPORT: FIRST ADMISSION

The patient, an unmarried woman aged 29, first came under observation on Dec. 8th, 1933, when she was admitted to the wards of Dr. W. F. Croll in the Aberdeen Royal Infirmary, complaining of muscular spasms.

History of the condition.—Two months before admission she developed spasms of the muscles of the face, chest, abdomen, arms, and legs in that order. The attack lasted for about five hours. When the muscles of the face were affected she was unable to open her mouth or to talk, and there was a severe "choking" feeling in the throat. The spasm was steady in character and no twitchings were noted. She was unable to describe the position of the hands and feet during the attack. Similar spasms occurred every two or three days up to the time of admission.

Previous history.—Close questioning revealed that the patient had suffered from mild diarrhœa since early infancy. Usually two or three motions were passed daily; sometimes this number was exceeded, and at other times there was only one motion daily. It was impossible to obtain a clear description of the character of the stools, but she thought they were always loose in consistence and light in colour. The diarrhœa increased six months before admission, about ten motions being passed daily. Her mother had told her that she had a distended abdomen when she was a child. Apparently, however, she was not considered to have had weak health in childhood, and was able to attend school regularly and play games normally. When she was 21 she developed double pneumonia, but made a good recovery.

Menstruation did not start until the age of 19. The periods had always been irregular and had frequently been absent for several months consecutively. The amount of blood lost was never large. Her appetite had always been good and she had taken an average mixed dietary all her life. Meat and green vegetables were consumed about five times a week. During the previous few months there had been a loss of 2 st. in weight.

Family history: nothing of importance.

Physical examination.—A very thin, pale, undergrown woman. Height, 4 ft. 10¼ in.; weight, 5 st. 2 lb. Tetanic spasm was present, affecting principally the muscles of the face, chest, and abdomen. The hands were in the "main accoucheur" position, and the feet and legs were rigid in extension. Apart from slight abdominal distension, there were no other abnormal findings. The serum calcium on the day before admission was 7·1 mg. per 100 c.cm. The patient was immediately placed on a low-fat diet and given injections of Parathormone and calcium lævulinate, and Radiostoleum by mouth.

Summary of investigations.—Dec. 13th, 1933: serum calcium, 6 mg. per 100 c.cm.; Hb, 67 per cent.; red cells, 3,050,000; colour-index, 1·1; white cells, 5600. The blood picture was normal. 15th: plasma phosphates, 1·7 mg. per 100 c.cm. 22nd: (after four days on the normal ward diet) stool, total fat 52 per cent. (neutral fat 26 per cent., soaps 10 per cent., fatty acids 64 per cent.) 27th: serum calcium, 9·0 mg. per cent.; examination of stools for pathogenic organisms negative; fractional gruel test-meal, complete achlorhydria. Jan. 11th, 1934: Hb, 65 per cent.; R.B.C., 3,300,000; C.I., 1·0; the blood picture was described as secondary anæmia; serum calcium, 8·8 mg. per cent.; plasma phosphates, 3·1 mg. per cent.

Progress.—During her stay in the ward the patient improved gradually after one further attack of tetany. The number of motions fell to two and then to one daily. She was discharged on Jan. 17th, 1934.

SECOND ADMISSION

On Dec. 1st, 1935, she was readmitted to Ward IV., Aberdeen Royal Infirmary, under the charge of one of us (J. A. I.), with a history of increasing weakness and vomiting of blood. Since discharge from hospital in January, 1934, she had been in sufficiently good health to allow her to get married. Mild diarrhœa, however, had been continually present, two or three motions being passed daily, and this had increased to about ten motions daily shortly before admission. Attacks of muscular spasm had occurred occasionally but they were mild and of short duration. Paræsthesiæ of the arms and legs had been frequent. About three weeks before admission she had become very weak and easily tired. Cough developed, and after spasms of coughing she had vomited blood on several occasions. She had epistaxis three days before admission.

Physical examination.—The patient was pale and exhausted. The tongue was clean and completely devoid of papillæ. Widespread rhonchi were present in both lungs. Chvostek's sign was positive but other manifestations of latent tetany were not found. No other abnormal findings were present. The temperature was slightly subnormal.

On the second day after admission it was noted that the right elbow-joint was stiff, swollen, and painful, and the skin over it was discoloured. There were numerous ecchymoses on the arms and legs, and a purpuric eruption on the thighs which later became more widespread, extending on to the trunk and the arms and legs. This

eruption was not follicular in distribution, and no bleeding occurred from the gums.

Summary of investigations.—Blood examination (H. W. F.) (Dec. 4th, 1935):—

Red cells ..	2,440,000	White cells ..	8400
Hæmoglobin ..	52 per cent.	Polymorphs ..	66 per cent.
Colour-index ..	1·08	Lymphocytes ..	27 ,,
Cell-volume index	1·37	Basophils ..	1 ,,
Reticulocytes ..	3·2 per cent.	Monocytes ..	6 ,,
Platelets ..	350,000		

The red cells were macrocytic, mean diameter 8·58 μ (normal 6·69–7·72 μ). Some were hyperchromic but many showed increased central pallor. There was a marked degree of anisocytosis (coefficient of variability, 16·6). The Price-Jones curve was typical of pernicious anæmia. Icterus index, 5; van den Bergh reaction negative; bleeding time, 90 sec.; blood coagulation time much increased (60 min.; control, 20 min.); red cell fragility normal.

Stools: benzidine reaction strongly positive.

Dec. 11th: serum calcium 5·2 mg. per 100 c.cm. (but hæmolysis had occurred in the blood sample).

Progress.—Since the blood picture suggested a deficiency of the anti-anæmic factor, intramuscular injections of 2 c.cm. of a concentrated liver extract, Anahæmin, were given on Dec. 6th, 7th, and 8th. On Dec. 9th the reticulocyte count was 12·4 per cent., and on the following two days 14·5 and 6·3 per cent. During the next few days considerable melæna was present, thus explaining the blood count on Dec. 16th—namely, hæmoglobin, 27 per cent.; red cells, 920,000; colour-index, 1·44; reticulocytes, 21 per cent. On Dec. 18th the patient was given a transfusion of one pint of citrated blood, and two days later the blood count was: hæmoglobin, 43 per cent.; red cells, 1,910,000; colour-index, 1·1; white cells, 8400; reticulocytes, 7·3 per cent. On Dec. 28th the hæmoglobin had risen to 68 per cent. and the patient was discharged at her own request.

FINAL ADMISSION

On Jan. 22nd, 1936, she was readmitted. A few days after her discharge she had developed severe pain in the throat, with hoarseness, dryness of the mouth, sore tongue, and loss of taste. This was shortly followed by a cough which yielded small amounts of mucus. Swelling of the legs appeared about two weeks before admission and rapidly became more widespread.

Examination.—The temperature was slightly subnormal. The pulse was almost imperceptible; rate 120 per min. The heart was not enlarged, and there was no evidence of valvular disease. Widespread rhonchi were heard over both lungs, and râles at both bases. Diffuse petechiæ and ecchymoses were present and affected the arms, legs, thighs, scapular and lumbar regions. In addition the skin over the extensor surfaces of the elbows, wrists, and knees on both sides showed symmetrical changes which were consistent with the lesions of pellagra, and were described by Dr. T. E. Anderson, University of Aberdeen, as follows:—

"Reticulated erythema of varying intensity but no actual telangiectasis over arms, buttocks, thighs, and legs. The skin over the elbows, knees, and knuckles shows parakeratosis and slight hyperkeratosis, and the palmar aspects of the finger-tips show the same with fissuring of the horny layer. The skin of the forearms, dorsa of hands, thighs, and legs, shows single layer scaling (average scale 1–5 mm.), and brownish pigmentation of parts of the erythematous portions of the pattern."

The legs and thighs showed considerable œdema which rapidly extended to the arms and lower trunk. The tongue was dry and red, the throat congested, and there was bilateral blepharitis.

On the day of admission the blood count was:—

Red cells ..	4,200,000	Polymorphs ..	84 per cent.
Hæmoglobin ..	70 per cent.	Lymphocytes ..	11 ,,
Colour-index ..	0·8	Monocytes ..	5 ,,
White cells ..	14,750		

Three days later the hæmoglobin and red cell count were unaltered, but the white cells had fallen to 8400. The blood films showed that a considerable degree of macrocytosis was still present, but there were in addition many normocytes and microcytes with central pallor. The urine contained a trace of albumin and was dark in colour due to the presence of indican and urobilinogen. Studies involving the withdrawal of venous blood were not undertaken owing to the widespread œdema. X ray examination revealed decalcification of all bones, particularly in the extremities.

Treatment with iron, Campolon, Marmite, calcium lactate, radiostoleum, and orange juice was commenced. The patient's condition, however, deteriorated rapidly. Sickness and vomiting supervened, the œdema increased, and she died on Jan. 29th—seven days after admission.

POST-MORTEM EXAMINATIONS

The following is a summary of the abnormal findings at the autopsy performed on Jan. 30th by Dr. W. M. Davidson.

Each pleural cavity contained about half a pint of straw-coloured fluid, and there were areas of collapse at both lung bases. Thin layers of pus covered the floor of the pelvis and the left dome of the diaphragm. The liver weighed 1020 g. and showed marked fatty degeneration. The pancreas was small, soft, and œdematous. Relative frequency of the islets suggested a slight degree of atrophy, but there was no increased fibrosis. The bile and pancreatic ducts were patent. The ovaries showed immature and scanty Graafian follicles. Red marrow filled the shafts of the femora and was beginning to replace the fatty marrow in the tibiæ. Masses of streptococci were found in the liver, spleen, suprarenals, and kidneys.

DISCUSSION

According to Thaysen it is impossible to differentiate between pancreatic and idiopathic steatorrhœa, unless the nitrogen excretion in the fæces is estimated. The combination of abnormal excretion of fat in the fæces, a normal or slightly raised fæcal nitrogen, a flat blood-sugar curve, and an increased basal metabolic rate are stated by him to be found only in idiopathic steatorrhœa. This case was not investigated in all these respects, because of the severity of the illness and because the extensive œdema would have rendered difficult any procedure involving the removal of venous blood. Nevertheless a confident clinical diagnosis of idiopathic steatorrhœa was made on the basis of the history and the multiple nature of the deficiencies. This was confirmed at autopsy by the failure to demonstrate any gross pathological condition of the pancreas and liver and their ducts.

It is very probable that the patient had suffered from cœliac disease since infancy, because diarrhœa had commenced and the abdomen was distended at an early age. Moreover, the stunted growth implies that the disease process had been present for many years before the onset of severe diarrhœa and tetany in 1933.

It is obviously a difficult task to allocate the various clinical manifestations that were present to separate deficiencies of individual vitamins or minerals. There appears, however, to be adequate evidence that our patient was suffering from a definite deficiency of the vitamins B_2 and C, the minerals, calcium and iron, and the anti-anæmic factor; and some evidence is available of deficiencies of vitamins A, B_1, D, and E.

Vitamin B_2 and the anti-anæmic factor.—It is very probable that a deficiency of vitamin B_2 was present, since the symmetrical pigmented skin lesions on the arms and elsewhere were similar to those found in pellagra. The frequency of pigmentary lesions in idiopathic steatorrhœa is pointed out by Thaysen,[4] who explains them on this basis. It is also possible, on the analogy of animal experiments, that the atrophic glossitis, achlorhydria with possible absence of Castle's "intrinsic factor," and the macrocytic anæmia, were all dependent upon deficiency of this

vitamin.[8] On the other hand, it is probable that intestinal absorption of the anti-anæmic factor is frequently defective in the disease under consideration, since a macrocytic picture may develop in conjunction with a gastric secretion which is normal, as judged by the presence of free hydrochloric acid.[6]

Iron.—The fact that an iron deficiency had been superimposed on the macrocytic blood picture in the later stages of the disease is supported by the central pallor of the red cells, and a colour-index appreciably less than the cell-volume index, and much less than one would expect from the considerable degree of macrocytosis shown by the Price-Jones curve. In view of the fact that hæmorrhage had occurred it is impossible to say whether or not diminished absorption of iron played a significant part in the production of this deficiency. It should be noted, however, that a blood picture described as "secondary anæmia" was noted in January, 1934, long before hæmorrhages had occurred.

Vitamin C.—The prominence of hæmorrhagic phenomena, as evidenced by epistaxis, ecchymoses, and petechiæ and bleeding from the gastro-intestinal tract, is noteworthy, since Bennett, Hunter, and Vaughan [6] consider that they are extremely rare. Thaysen [4] describes only one case with severe bowel bleeding and subcutaneous ecchymoses, which he attributed to a vitamin-C deficiency in spite of the absence of a scurvy-like stomatitis. In our case also no lesions of the gums were present. The normal bleeding time and platelet count exclude thrombocytopenic purpura, while the sex, the absence of a familial history, and of a history of bleeding during childhood exclude hæmophilia. Toxic damage to capillary endothelium due to infection cannot be accepted as an explanation of the hæmorrhages, since these occurred months before the terminal streptococcal septicæmia found at autopsy. Accordingly, it seems probable that an abnormal condition of the capillary walls due to vitamin-C deficiency and possibly aggravated by the low blood calcium was responsible for the hæmorrhages. It is unlikely that hypocalcæmia was the main cause, since tetany is a very frequent manifestation of the disease, whereas hæmorrhages are very rare.

Vitamin D and calcium.—The tetanic spasms and osteoporosis depend on a deficiency of vitamin D and calcium. A low blood calcium may result in this condition from one or a combination of three factors, all of which were probably present in this case.

1. A deficient intake of vitamin D owing to the low-fat diet prescribed for these cases.
2. Inavailability of a large proportion of the ingested calcium secondary to the failure of fat absorption which leads to the loss of large amounts of calcium in the fæces as insoluble soaps.[9]
3. Poor absorption of the available calcium owing to intestinal dysfunction.

Vitamin A.—Typical avitaminosis A appears to be very rare in idiopathic steatorrhœa. It is possible that partial deficiency of this vitamin contributed to the defective growth which occurred in this patient and which is so common in this condition. The post-mortem evidence of widespread streptococcal infection which produced so few manifestations of reaction during life suggests that a lowered resistance to bacterial invasion may have been further evidence of this deficiency.

Vitamin B_1.—Œdema, which was such a pronounced feature in the terminal phase in this case, appears to be relatively uncommon in idiopathic steatorrhœa. In one of Thaysen's cases [4] œdema was widespread before death, and was present to a slight extent in one other. Bennett, Hunter, and Vaughan [6] do not mention this complication. In our case it did not appear to be cardiac in origin, since there was no venous congestion, no enlargement of the liver, and no dilatation of the heart; and the clinical and post-mortem findings give no suggestion that it can be explained on the basis of renal pathology. It is an attractive hypothesis to attribute the œdema to vitamin-B deficiency and so place it in the same category as the œdema of beri-beri, but in the absence of polyneuritis and cardiac enlargement such an explanation can be considered only as a possibility. A low level of serum proteins consequent on diminished intestinal absorption may have been responsible. Nitrogen balance studies [4 10] in this disease show that as a rule the nitrogen excretion is normal or only slightly increased, in contradistinction to the marked increase which occurs in pancreatic steatorrhœa. So far as we are aware, however, such studies have not been carried out in a case similar to the one under consideration, where very gross upset in intestinal function was present and the patient was in the terminal phase of the disease. Under such circumstances it appears very probable that absorption of all food elements was greatly diminished. In addition it should be borne in mind that vomiting occurred periodically during the last few months of the illness and the appetite was very poor, so that there was certainly a low intake of protein. Whatever the primary cause of the œdema, there would seem to be no doubt that the extensive capillary damage which resulted in spontaneous hæmorrhages was an important contributory factor.

Vitamin E.—A late onset of menstruation was noted in three of the series of cases reported by Bennett, Hunter, and Vaughan,[6] and was present in the case here described. The periods, moreover, were frequently absent altogether for several months. The extent to which hypovitaminosis was responsible for this condition can be, at present, only a matter of conjecture. Thaysen [4] suggested that the diminished sex impulse which may occur in idiopathic steatorrhœa is due to a deficiency of this vitamin.

SUMMARY

A case of idiopathic steatorrhœa is reported, with details of the clinical manifestations, blood picture, chemical analyses, and autopsy findings.

The report of a single case appears to be warranted by the multiple nature of the deficiencies which were present. Evidence is presented of a deficiency of calcium, iron, the anti-anæmic factor, the vitamin-B complex, and vitamins C and D, and a possible deficiency of vitamins A and E is discussed.

The biochemical investigations reported in this paper were carried out by Dr. A. Lyall, University of Aberdeen. We wish to express our thanks to Prof. L. S. P. Davidson for his advice in the preparation of the case for publication.

REFERENCES

1. Davidson, L. S. P., Fullerton, H. W., and others: Brit. Med. Jour., 1933, i., 685.
2. Davidson, Fullerton, and Campbell, R. M.: Ibid., 1935, ii., 195.
3. Minot, G. R.: Jour. Amer. Med. Assoc., 1935, cv., 1176.
4. Thaysen, T. E. H.: Quart. Jour. Med., 1935, N.S., iv., 359.
5. ,, : THE LANCET, 1929, i., 1086.
6. Bennett, T. I., Hunter, D., and Vaughan, J. M.: Quart. Jour. Med., 1932, N.S., i., 603.
7. Castle, W. B., Rhoads, C. P., Lawson, H. A., and Payne, G. C.: Arch. Internal Med., 1935, lvi., 627.
8. Miller, D. K., and Rhoads, C. P.: Jour. Clin. Invest., 1935, xiv., 153.
9. McCance, R. A.: THE LANCET, 1936, i., 643.
10. Anderson, A. G., and Lyall, A.: Quart. Jour. Med., 1933, N.S., ii., 339.

CLINICAL AND LABORATORY NOTES

DIFFEI NTIAL DIAGNOSIS OF SPRAINED ANKLE

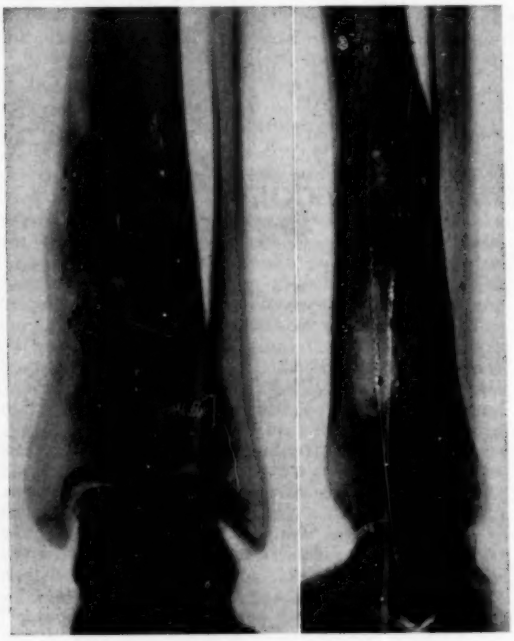
BY R. SALISBURY WOODS, M.D. Camb., F.R.C.S. Eng.

SINCE 1923 I have followed and modified [1] Frank Romer's method of strapping severely sprained ankles and starting ambulatory treatment at once.

The following patient, a healthy undergraduate, walked in to see me, and asked and expected to be enabled to play tennis the following day!

He stated that on June 1st, 1936, his ankle had become involved with the pedal of his bicycle, and requested me to "fix up the sprain" so that he might resume his tennis at once.

On examination the right ankle presented a very swollen appearance and was found to be 1½ in. greater in circumference than the left. There was no abrasion or bruising. As the swelling was mainly just above the actual joint, though including that level, I discarded the patient's diagnosis, and thought of cystic enlargement of the tibia or of chronic osteomyelitis. Pulse and temperature were normal, and there was no redness or œdema present. The swelling, however, felt definitely warmer to the touch than the corresponding region of the lower limb.



Anterior. Lateral.

History.—At this point, inquiry showed that the patient had been operated upon for some alleged cystic disease in the *left* os calcis nine years ago, following an infected throat.

Diagnosis.—It would appear that there is a low grade infective process in the lower end of the tibia, probably embolic in origin, dating from the time when the *left* os calcis was affected, probably encysted in character, causing sclerosis around it, and becoming more active now.

Radiography confirmed this opinion, showing a Brodie's abscess of irregular outline about 2½ by 1 in. in size (see Figure). The night before and on morning of operation, the temperature rose to 100° F.

Operation.—The subcutaneous surface of the lower third of tibia, forming the roof of the abscess cavity, was gouged away, leaving it wide open, with no overhanging ledge of bone. The tibia was greatly thickened by osteosclerosis. Free pus escaped early in the operation, and a large quantity of necrotic cancellous tissue was removed. When the cavity was rendered completely clean, B.I.P.P. was applied, and it was lightly packed with ribbon-gauze. The middle third of the wound was left open. The subcutaneous surface was chosen so as to leave the tendons of the anterior tibial group of muscles free. I proposed to let him walk as soon as he was fit for ambulatory treatment in a Böhler walking-splint—of Cellona plaster, with stirrup.

After-treatment and progress.—Eusol irrigations twice daily for a week. June 6th: paraffin gauze packing, and left undisturbed for a week at a time. Put up in a non-padded cellona splint with stirrup, leaving a window for dressing the wound. This happily was just anterior to the vertical side-piece of the stirrup.

June 20th: patient has walked well ever since; discharge much less; central sinus.

On Sept. 21st he reported to me in Cambridge. His general condition was excellent, and the sinus was soundly healed. Radiograms were very satisfactory. There was no inflammatory absorption of bone; compact bone was permeating the cavity; and all the B.I.P.P. had been absorbed. He has done plenty of walking, swimming, and other exercise.

[1] Woods, R. Salisbury: Modern Treatment in General Practice, vol. ii., London, 1935, p. 69.

TREATMENT OF PRURITUS ANI BY CALOMEL

BY T. E. HESS THAYSEN, M.D.
CHIEF PHYSICIAN TO THE ST. ELISABETH HOSPITAL, COPENHAGEN

[Dr. Hess Thaysen died on April 19th, 1936, aged 52. Among his papers was found this note on the treatment of pruritus ani, which he was anxious to have published in England, where his writings on non-tropical sprue [1] and proctalgia fugax [2] were already well known. He also wrote papers on constipation, especially its treatment without aperients, on ulcerative colitis, and on pellagra.—A. F. H.]

Pruritus ani is such a common and annoying affection that it is easy to understand that its treatment has been the subject of considerable discussion. In my first years as a practising physician my own methods were uncertain. X ray therapy proved successful in some cases, although the favourable results were as a rule only temporary. Then by chance I learned that a fellow-physician in my country, Dr. H. R. Magnus, had employed calomel as a powder or ointment with good results. I thought it would be worth trying this method, though I was far from being confident about its efficacy. From the first these experiments gave surprisingly good results, and I have since employed the treatment alone in such cases. In the last 20 years I have limited my practice to the specialty of gastro-intestinal diseases,

[1] THE LANCET, 1929, i., 1086.
[2] Ibid., 1935, ii., 243.

and I have treated a fairly large number of patients suffering from pruritus ani—some very mild cases, others very severe and refractory, some of brief duration, others dating back a good many years. From my personal experiences I can vouch for the good effects of the treatment.

The method is as follows. In the morning and evening the anal region is washed with tepid water and a bland soap, and then wiped with a soft towel. The area is now powdered with finely pulverised calomel. It is essential to instruct the patient that he must see that his bowels move freely, if necessary helped by some mild laxative. I always advise my patients to try to have their bowels open shortly before they go to bed, as it is my impression that the presence of hard fæces in the rectum may aggravate the itching. Apart from this I have not given any form of treatment; in particular I have not forbidden them to use tobacco, alcohol, or spices. As soon as the patient has followed these directions for a few days—at most 10-12 days—he feels a considerable decrease of the itching, which then subsides completely within a week or so. It happens not infrequently that the patient has a relapse some time later, but the relapse soon yields to the calomel treatment.

It is my impression that it is most effective in patients in whom the skin around the anus is atrophic, shiny, and hairless—i.e., in the typical cases of genuine pruritus ani. I have never seen any complications arising from this therapy, but a colleague who has obtained quite similar favourable results has told me that in two of his cases that were associated with eczema around the anus the treatment gave rise to mercurial dermatitis. If pruritus ani is associated with eczema, therefore, the latter condition must be cured before the calomel treatment is to be instituted.

The results have been so favourable in my practice that it has not been necessary for me to refer any patient for radiotherapy or surgery. Naturally the therapy has failed in a few cases, but none was so severe that the patient wished to try any other means. The treatment does not appear to have any effect on diabetic pruritus, nor in the combined pruritus ani et vulvæ. Nor have I seen any effect when calomel is applied for pruritus of other parts of the body.

I regret that I am not able to substantiate my statement about the good results by statistics, for many of my cases are difficult to trace. I am able to report, however, that of 36 patients whom I have treated in the last few years, 34 have stated that they are now perfectly well, or that they have had only a very mild relapse or two. The observation period for these patients covers up to two years.

The calomel treatment is so inexpensive and so easy to carry out, that it should be tried in every case of genuine pruritus ani before any other treatment is considered.

REVIEWS AND NOTICES OF BOOKS

From a Surgeon's Journal 1915–1918

By HARVEY CUSHING. London: Constable and Co., Ltd. 1936. Pp. 533. 18s.

IT is perhaps just as well that most diaries remain unpublished; but one kept by a man who has both the opportunity of seeing and hearing matters of importance, and the ability to give vivid expression to his observations and reflections provides fascinating reading. When glancing at abstracts from Harvey Cushing's journal we have the privilege and delight of sharing the experiences and thoughts of one who was a watchful observer of life in war-time, not only at the Front but in London, Paris, Dublin, Boston, and New York. Even those familiar with the author's characteristic attention to detail will be astonished at the conscientious way in which he has noted, besides the principal features of interest, the names of the more insignificant places he visited and of the less important people he met, with an historical allusion or an anecdote to fix them in his memory. His tours of inspection brought him into contact with all sorts of men, and all conditions of life from palace to peasant's dwelling, and his familiarity with the great contemporary figures in British, French, German, and American public life will give the book an interest for a wide circle of readers. The recording of these observations must have occupied time snatched from much-needed rest or sleep, but it is clear that the writer was accustomed to doing the work of several ordinary men. Perhaps the most remarkable example of this is what he calls "The Battle of Boston Common" when, early in 1917, in addition to his arduous duties at the hospital, he was trying, almost single-handed, to stimulate the civic authorities, the Red Cross, and various government departments to prepare for the American entry into the war.

Cushing's reactions to his own war experiences are of deep interest. In the earlier phases of the war he comments mostly upon the plight of the wounded and upon the difficulties which medical officers had to face in coping with overwhelming bursts of work, whereas he was later more concerned with the problems of organisation and supply, and of military strategy. By hook or by crook he acquired a collection of maps which helped him to understand the situation on the Western Front, and many of them, as well as photographs and drawings by the author himself, are here reproduced.

In this book the conflict between the orderly and comparatively leisurely conditions of civil life, and the confusion and rush which became almost unbearable during certain critical periods at the Front is clearly brought out. In surgery this meant a conflict between idealism and expediency, the result being "an awful business, probably the worst possible training in surgery for a young man, and ruinous for the carefully acquired technique of an oldster." But Cushing has always made it a rule to look for the best in everything, and in another place he says: "But these young surgeons of the C.C.S. type have learned their jobs well and do the finest sort of emergency surgical work for chests, knees, and abdominal wounds."

Modern Professional Nursing

By DOUGLAS HAY SCOTT, M.B., Ch.B., Lecturer in First-aid, Anatomy and Advanced Physiology, Morley College. London: Caxton Publishing Co., Ltd. 1936. Four vols. £4.

IN undertaking to produce "a complete compendium of knowledge based on the syllabus of subjects for examination for the Certificate of General Nursing," Dr. Hay Scott has set himself no simple task; but he has certainly discharged his obligation in a workmanlike manner. He has endeavoured to make these four volumes a work of reference which

will not only be a practical guide to the nurse during her life in hospital and her later career outside, but which will anticipate the wildest vagaries of the examiner. In a less examination-ridden civilisation than ours these two purposes might well be identical; but actually they are so often divorced that the reader can sometimes observe where Dr. Hay Scott has turned with a sigh from the bones and sinews of his subject to add such accessories as, say, an account and picture of the muscles which wag the ear. The scope of the work is, of course, considerable. Vol. I. deals only with anatomy and physiology, Vols. II. and III. with hygiene, first-aid, the theory and practice of nursing, materia medica, therapeutics and dietetics, and medical nursing, and Vol. IV. with surgical and gynæcological nursing. His clinical descriptions of disease are admirable, the living accounts of an eye-witness, not the dull summaries of a confirmed text-book writer. "The cough," he says, speaking of lobar pneumonia, "which is at first a series of short grunts (as if the patient wishes to bring up sputum, but suddenly changes his mind) develops into a more useful reaction, and sputum is expectorated." There are plenty of these brief, illuminating pictures. Even when he is dealing with the less dramatic subjects of anatomy or hygiene he does not become tedious. He has some pithy things to say about the house-fly, and begins briskly: "Flies revel in dirt, and therefore their breeding place is the midden, the garbage heap, and the dunghill." This direct attack upon his subject is characteristic of the whole work.

The coloured plates scattered through the books and the numerous uncoloured diagrams illustrate the text well. The plate showing the different types of blood-cell is disappointing, and indeed the section describing them is not quite so closely in line with modern teaching as the rest of the work. Special apparatus and appliances have been illustrated with diagrams taken from manufacturers' catalogues. The print is well chosen and arranged. A few omissions in a work of this size are inevitable; but they are mostly trivial, for example, the omission of any reference to the value of rings of Zopla plaster in the treatment of bedsores. A table showing the terms and abbreviations used in prescription writing, and giving their meanings, will be welcomed heartily by every nurse; such a table might well find a place in medical text-books for the benefit of those doctors who have travelled far since their study of pharmacology and still farther from their Latin.

Methodik der Medizinischen Erbforschung

By Dr. BRUNO SCHULZ, Asst. am Kaiser Wilhelm-Institut für Genealogie und Demographie der Deutschen Forschungsanstalt für Psychiatrie in München. Leipzig: Georg Thieme. 1936. Pp. 189. R.M.10.50.

THE application of statistical methods to psychiatry has necessitated special procedures on both sides in gathering and handling the material. These methods have hitherto been described piecemeal in scattered publications; no systematic account has been available. Dr. Schulz, who has for many years worked in the genetics department of the research institute founded by Kraepelin at Munich, has now compiled a guide. After an introduction in which the aims and possibilities are discussed, the mode of ascertainment is described in detail. The major part of the volume is given up to the various statistical methods for dealing with the data: though the author is mainly dependent on German contribution in this field, he is not unfamiliar with some of the recent English work. The mathematical part is by no means abstruse or thorough—e.g., the reader is referred to R. A. Fisher's book if he wants to learn about χ^2, and is told that such refined methods are generally superfluous in medical genetics.

Although written specifically for physicians who may have no previous knowledge of statistical method, this book would be informative to statisticians who are called upon to examine clinical material, since it indicates the difficulties and pitfalls which beset the path, especially where psychiatry is concerned.

Custom is King

Essays presented to R. R. MARETT *on his Seventieth Birthday, June 13th, 1936.* By Various Authors. Edited by L. H. DUDLEY BUXTON. London: Hutchinson's Scientific and Technical Publications. 1936. Pp. 325. 12*s.* 6*d.*

HERE are 19 essays, three of them written in German and the rest in English, contributed by his friends and pupils and presented to the Rector of Exeter on the occasion of his seventieth birthday. In his appreciation of Dr. Marett, the editor explains that "Rite's the thing" has virtually become an anthropologist's motto. "Custom . . . may not only be king, but also the nursery of belief," and, however much the psychologist may deplore it, few will deny the psychological importance of social behaviour. Although a doctor may envy the anthropologist his opportunities for extensive theorising from inadequate data, many of these essays will interest the merest layman in anthropology; that of Miss Beatrice Blackwood, for example, the only woman contributor, who writes engagingly about the private lives of the natives of Bougainville; and Mr. A. M. Hocart's amusing one on snobbery as a social force. Among the essays of interest to those uninitiated into anthropology are Mr. D. Westermann's on Lisa, the chameleon-god, Mr. Raymond Firth's on bond-friendships, and Mr. Diamond Jenness's on the prehistory of the Canadian Indians. Mr. Dudley Buxton is to be congratulated on having brought together such a wealth of talent in the making of this delightful book. A reproduction of Dr. Marett's portrait by Mr. Henry Lamb forms the frontispiece, and a bibliography of his scientific writings, edited by Mr. T. K. Penniman, is appended.

A Textbook of Histology

By JOSEPH KRAFKA, Jun., Ph.D., M.D., Professor of Microscopic Anatomy, University of Georgia School of Medicine, Augusta. London: Baillière, Tindall and Cox. 1936. Pp. 246. 11*s.* 6*d.*

THIS book has been designed as an introduction to the study of histology, and care has been taken to help the beginner in acquiring the special vocabulary of the subject. The derivation of technical terms is given as they occur, and short references are made in the text to many of those early anatomists whose names have become incorporated in histological terminology. The work gives a short account of the microscopic anatomy of normal tissues and organs as seen in material prepared by the usual methods of fixing, sectioning, and staining,

and each chapter includes some facts about the functions of the structures described. Brief references are made to histological changes occurring in certain pathological conditions. The figures do not augment the text; they are almost all line charts. These provide a trained observer with simple records of his observations, but a beginner needs good microphotographs carefully labelled if his text-book is to help him analyse his own slides and not merely provide him with a record of the observations of others. The chapters on bone-marrow and blood, the best sections of the text, are also the best illustrated. The chapter on the nervous system contains some inaccuracies—e.g., the use of the term "nucleus dorsalis" as though it were a synonym for the whole of the grey matter of the posterior horn of the spinal cord—and is too compressed to be useful to beginners. Several printers' errors have been overlooked—e.g., "nucleus rubra" on p. 221 and "centripetal" for "centrifugal" on p. 124.

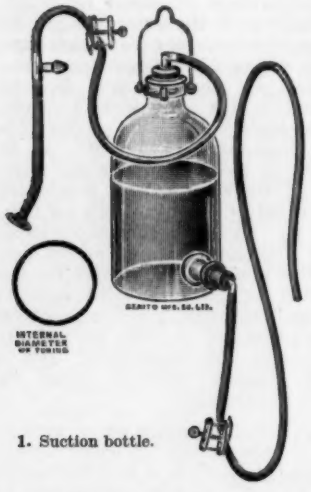
Whilst the desirability of connecting the teaching of microscopic anatomy, physiology, and pathology is obvious, it has unfortunately been impossible in this small volume to combine this with the provision of a text-book of histology covering all the requirements of medical students in this subject.

NEW INVENTIONS

CLOSED DRAINAGE OF EMPYEMA

IN practice some small mechanical defect often interferes with the satisfactory working of a closed drainage system such as may be required in the treatment of acute empyema. Narrow glass connexions easily become blocked, hurriedly bored corks lead to leaking connexions, and various small mechanical failures render the aim of making an airtight drainage ineffective. To overcome these difficulties small modifications in one of the most simple systems have been made.

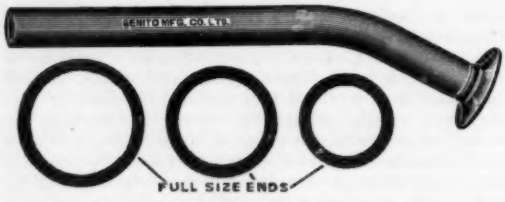
The apparatus consists of a bottle of standard size with a top inlet and an outlet at the side of the bottom (Fig. 1). The corks are made of rubber, and all connexions of relatively wide bore and thin metal tubing, so as to obviate any chance of reducing the lumen of the system between the bottle and the chest. A capped T-piece with a record fitting connects either direct to the actual drainage-tube or has a short length of tubing interposed with small thin glass connexion constructed to fit the lumen of the empyema tube accurately. This T-piece can be used for irrigating the pleura without disconnecting any joint, or for refilling the bottle so long as a clip is applied on the appropriate side of the T-piece. The outlet tube is controlled by a screw-clip which can be altered to adjust the rate of flow from the bottle. The flat base of the bottle allows it to be placed on a table or locker, but, since experience has shown that it is liable to be disturbed or inadvertently knocked over, a metal ring with a swivel loop has been fitted to the neck of the bottle. This enables the bottle to be hung from the bed-rail or a hook where it can be safe from interference. The suction that can be obtained depends on the height of the column of water from the fluid level in the bottle to the lowest point on the outlet tube. Manometric readings have shown that a sub-atmospheric pressure of 20–40 mm. Hg is obtained with the patient in bed and the bottle on a level with the empyema tube.



1. Suction bottle.

The idea that underlay the design was to have some cheap and simple form of apparatus which could be attached forthwith to the drainage-tube. The bottle is filled with water or antiseptic solution, and the outlet tube placed in a basin or bucket when the outlet clip can be released. The only responsibility lies in seeing that the bottle is not allowed to get empty; filling twice or three times a day should be adequate. If fluid flows continuously from the bottle after the first ounce or two it can be assumed that the system is not airtight and inspection must be made for the leak which is usually found between the tube and the chest wall.

The bottle is made in two sizes, 2 pint and 4 pint, and has been used for the past two years in a variety of circumstances. The number of times in which there have been failures from blocking of the tubing by clot or flakes of lymph has been surprisingly small.



2. Empyema tube.

In connexion with this same drainage bottle a modified form of empyema tube has been employed. It consists of an angled tube of unusually thin and hardened rubber to which a flange is welded. The flange is made unduly large so that it can be cut down to the size required, and the joint between the flange and the tube is slightly "belled" to assist in making an airtight joint at the pleural opening. The angle in the tube is designed to avoid pressure or kinking against the pillow when the drainage opening is situated well back in the paravertebral gutter. The tube is made in different sizes, and Fig. 2 shows the relative thinness of the rubber of the walls as compared with the effective lumen. As a matter of interest it has been found that these tubes have less tendency to perish than those made of thicker and softer rubber.

The makers are the Genito-Urinary Manufacturing Company.

T. HOLMES SELLORS, D.M., M.Ch. Oxon.,
F.R.C.S. Eng.

THE LANCET

LONDON: SATURDAY, OCTOBER 3, 1936

THORACIC MEDICINE

Prof. SAUERBRUCH's review of the development of thoracic surgery, of which we publish the conclusion on another page, provides a suitable opportunity for taking stock of the present position of the physician in relation to diseases of the thoracic cavity. In the earlier part of his review SAUERBRUCH writes: "In judging the findings in the lungs, the character of the patient, the state of the so-called healthy side, and the general condition of the patient the surgeon should consult an experienced specialist." The terrible mortality referred to as resulting from the surgical treatment of empyema in its early stages must be looked on rather as the result of unsound theory than of rashness on the part of the surgeon, as at that time physicians and surgeons alike were filled with the idea that empyema was no exception to the rule that a pus-containing cavity should be freely drained as soon as located. The treatment of pulmonary abscess has also become more conservative than seemed at one time likely; by accurate radiological localisation followed by postural and bronchoscopic drainage the majority of cases clear up without operation. Observations such as these suggest that a critical inquiry may be helpful to determine the security of the foundation on which the recent enormous increase in the scope of thoracic surgery has been built.

The surgery of pulmonary tuberculosis is largely that of cavities which cannot be closed by artificial pneumothorax; when these are large and have rigid walls they are not likely to close spontaneously and statistical evidence shows that a large proportion of such patients do not live more than about three years. Nevertheless these cavities may become dry and an appreciable number of those who have them lead active lives for many years; hence there are few physicians in this country who advocate thoracoplasty in the absence of all symptoms, whatever the appearance of the lesion. When symptoms persist in spite of other methods of treatment, and when the physician feels that without surgical treatment the lesion is unlikely to heal, he must seriously consider thoracoplasty. Agreed that it is advisable, the main question to be decided is when the operation should be done. For such treatment to have a good chance of success the general condition of the patient should not have been too much undermined by prolonged toxæmia; if therefore the worse lung is so bad that improvement cannot be expected the only chance may be to operate without delay. At the same time it must be remembered that in acute cases with caseous lesions and little or no evidence of fibrosis the disease usually spreads to the better lung after thoracoplasty, and it is on the condition of this lung that the decision mainly depends. In the consultation that is essential at this juncture it is useful to the physician if the surgeon can give him as accurate an idea as possible of the extent of the rib resection necessary and the probable number of stages. For example, a patient with a large rigid-walled cavity with a barrel-shaped chest and prematurely ossified costal cartilages will require a more formidable operation than one with a more slender chest and a lesion limited to the apex. In assessing the condition of the better lung the physician's task is one of great responsibility; in general he will be guided more by the character of the lesions as seen radiologically than by their extent; a small exudative lesion being an indication for delay, whereas a more extensive infiltration of fibrotic character—especially when serial X rays, at intervals of a month or two, show that there has been no extension for a long period—may not contra-indicate immediate operation. It is significant to note that SAUERBRUCH, like some leading surgeons in this country, finds that his recent series of thoracoplasty statistics are not so good as those obtained some years ago. The explanation of this is that when thoracic surgery was in its infancy there was very careful selection of cases and many whose lives might now be saved at a slightly greater risk were rejected. However critically the situation is surveyed it seems unlikely that the surgery of pulmonary tuberculosis will ever reach that stage of excessive zeal which was so disastrous in the case of empyema. Whereas with an acutely ill patient it is often difficult to remain inactive as long as is necessary, psychological influences have the opposite effect in chronic conditions. A physician who has witnessed the death, after thoracoplasty, of a patient who without the operation would probably have had a few years of tolerable existence, and a slight chance of eventual recovery, will be a remarkable man if he does not allow this experience to weigh with him unduly and to the detriment of subsequent patients. One operative fatality impresses more than a number of deaths read of some time afterwards in an obituary column.

In carcinoma of the lung, surgery is still in its infancy, but physicians have every reason to keep a look-out for those unfortunately rare cases in which surgical removal is possible, as unless the surgeon is called in death is inevitable and its mode frequently painful. The surgical treatment of bronchiectasis presents more difficult problems. In this condition also lobectomy is the only cure, but although its mortality has now been reduced to about 10 per cent. it still remains a formidable operation. By the time bronchiectasis is well established and septic it is usually bilateral. It is known that a large number of cases of early dry bronchiectasis progress into the more severe and ultimately fatal form, but there are some cases which remain stationary for years and perhaps never develop symptoms. Prolonged observation and hygienic measures seem to be the rational treatment for this group. Intermediate cases with sputum which

almost or completely clears up with postural and bronchoscopic drainage are more difficult to decide about. Probably the great majority of these cases are progressive, and if this is the case those that are unilateral should be treated by lobectomy before the other side is affected. It is to be hoped that a really extensive survey and follow-up of early bronchiectasis will be made, extending over many years, as the physician would be on much firmer ground if he knew more precisely what the outlook is in these early cases.

THE MEDICAL WITNESS AND HIS FEES

THE labourer being worthy of his hire, legal process is normally available for its recovery. When, however, the labourer is a medical practitioner and the hirer is a lawyer, things are not always what they seem. In a case recorded in the report presented to last week's annual general meeting of the Medical Defence Union a letter from a firm of solicitors, arranging for the attendance of a doctor in court as a witness, stated "your fee will be paid." When the doctor eventually asked for payment, he was told that the solicitors had no funds from the client wherewith to pay; the solicitors maintained, as a point of principle, that they were not personally liable. What their words really meant, it appears, was "your fee will *not* be paid" or "your fee will only be paid in a contingency at present unpredictable." The Union sought to test the point of principle. The smallness of the sum precluded an original action in the High Court, but a summons was taken out in the county court with the idea of an ultimate appeal to a higher tribunal. The solicitors, who had raised the point of principle, declined to agree to its being tested in the proposed manner and, before the case came into court, they proffered the amount of the claim together with the costs of the proceedings. Legally, it seems, a solicitor who requisitions medical services on behalf of his client is not liable unless he has entered into a personal undertaking to pay the fees involved or has otherwise assumed personal liability. The Law Society is understood to hold the view that, unless solicitors are satisfied that there are reasonable grounds for believing the client to be in a position to pay the necessary fees, they ought not to invite the services of a prospective witness without either warning him of their client's financial position or placing themselves in possession of sufficient funds to pay for the services required. The situation will not arise where reputable solicitors are concerned; it is the black or subfusc sheep of the profession who abuse its honourable traditions by an occasional descent into speculative litigation wherein, by the mysterious and forbidden processes of champerty and maintenance, reward is dependent upon success. The Law Society has laid it down that a solicitor should in every case use his best endeavours to secure the payment by his client of the fees of expert witnesses. Any witness, called to state matters of fact, can refuse to attend the court without subpœna and can demand payment of his fees before giving evidence. A doctor whose presence as an expert witness is likely to be needed should refuse to give a report or make any statement until satisfied that his fees would be paid. This means, however, that he may be obliged to probe the status of members of the legal profession—an invidious task which the Law Society is far better qualified to perform.

OBSERVATION WARDS

A SYSTEMATIC examination of observation wards by the Board of Control during last year revealed a disturbing variation in the standards of care and treatment adopted in different places. The observation ward is primarily a clearing-house, in this respect performing for the cases of psychiatric emergency what the out-patient clinic provides for less acute forms of mental disorder. The out-patient clinic also provides treatment, and the view of the Board of Control is that treatment ought not to be undertaken in the observation wards. On this question, however, not only administrative and medical considerations but also public opinion must be considered. The public has not yet come to regard the mental hospital in the same way as it does the general hospital; the partial substitution of voluntary for compulsory treatment has done much to counteract the general prejudice, but it is still possible to suffer economically and socially because one is known to have been in a mental hospital. This injustice and hardship may rest as heavily on the patient who was voluntarily in the mental hospital as on those under certificate, and this is probably true also of the few "temporary" patients. The use of the observation ward for treatment of the case that will clear up within three or four weeks has therefore still much to be said in its favour.

The issue must turn on the facilities available in the observation ward, and the extent to which the public has been or can be brought to an unprejudiced notion of mental hospitals. Where the observation ward is improvised, staffed by people with no psychiatric experience, or used as a common dumping-ground for chronic patients and low-grade mental defectives as well as for the acutely insane, there can be no valid argument for its retention: immediate admission to the mental hospital is far preferable. But where the observation ward serves its proper purpose in the coördinated psychiatric services of a district, it is at once the reception hospital for acute or dangerous mental illness, the distributing and diagnostic centre, and the place of treatment for very transient conditions such as some toxic and symptomatic psychoses — e.g., puerperal ones — or suicidal attempts of neurotic or reactively depressed patients who soon become suitable for out-patient treatment. The observation ward, where the size and resources of the district permit, can be of great value when organised as a reception unit, with adequately trained medical and nursing staff, a psychiatric social worker, and a psychiatric consultant (preferably one of the senior physicians of the corresponding mental hospital), who visits once or twice a

week to decide as to subsequent treatment or disposal of the patients.

Where this system has been instituted, an individual regard for the patient's later treatment takes the place of a summary decision between reference of the patient to a mental hospital and his discharge to his home without further concern as to what becomes of him. About a third of all admissions to the observation ward can, under these conditions, be returned to society within a few weeks. The Board of Control stress the need for admission units in mental hospitals and for far more admissions to be arranged under the voluntary and temporary provisions of the Mental Treatment Act. The units would receive many of the patients now discharged from observation wards, and admissions of uncertified patients in mental hospitals would in time lead to a modification of the popular dislike of mental hospitals. On p. 35 of their admirable report, which we summarise on another page of our present issue, the Board say: "It is hardly necessary to emphasize the psychological importance of such a change. The present prejudice, a most regrettable prejudice, against treatment in a public mental hospital cannot survive if half the patients enter voluntarily and two-thirds escape certification. Such a profound change in the standing of public mental hospitals must inevitably produce a corresponding change in the attitude of the public towards them and mitigate in a progressive degree the stigma which has hitherto attached to them." This change is immensely desirable, but the day is still far off, if experience in this country and elsewhere may be trusted, when most of the psychiatric services of a community can be properly concentrated at mental hospitals which contain a large number of the chronic insane. To educate public opinion about mental hospitals is in itself a good thing, but to provide facilities for prompt and early treatment where they are most likely to be availed of is better still. The Board of Control do not of course recommend the wholesale abolition of observation wards; they say explicitly "at the same time we recognise that the well-organised observation wards may serve a useful purpose," but in their opinion that purpose is the diagnosis of doubtful cases. The sooner the badly staffed and badly equipped observation ward disappears the better, but in our view it would be unfortunate if such a valuable intermediate hospital as the properly organised observation ward were to be done away with or if its opportunities for short period treatment were whittled down in populous districts in the hope that most of its admissions would thereby come to be referred direct to the mental hospital. There can be no doubt that some of the deficiencies described in this report call for urgent remedy, but it is open to question whether the remedy lies in making all observation wards fit to survive into purely diagnostic and distributing stations for doubtful cases.

ANNOTATIONS

FRUITS, VEGETABLES, AND NUTS

Dr. R. A. McCance and two of his colleagues have analysed quantitatively some hundred and thirty kinds of fruits, vegetables, and nuts. Their findings and some observations on changes caused by cooking are given in a green book just issued by the Medical Research Council.[1] Although many of the estimations have been made before, the report contains much that is new. Improved analytical technique and better sampling have made for greater accuracy than was formerly achieved, and some of the figures which these will replace have been handed down from publication to publication for thirty years or more. The new analyses have been as far as possible made comparable by strict uniformity of methods. Certain deductions at one time considered to be justified from some of the analyses have been shown to be fallacious. For instance, while the nitrogen content of most fruits and vegetables is proportionate to the protein, a large amount of urea has been found in mushrooms, reputed to contain much protein, which upsets this relationship. The authors have borne in mind that the chemical analysis of a food may sometimes be misleading as a guide to its nutritional value because some of the material may not be "available": thus Dr. McCance had shown earlier, with Miss Widdowson, that about half the phosphorus of phytin passes through the alimentary canal unabsorbed, and for this reason both phytin phosphorus and total phosphorus are given in most of the analyses.

In commenting on the analyses the authors point out that, contrary to popular belief, vegetables other than dried pulses contain relatively little "roughage," even green leaves having only 1·6 to 4·5 per cent. They also say that only about half of the "unavailable" carbohydrate or roughage eaten can be recovered in the fæces, the disappearance of the other half being attributed to the work of bacteria in the intestine.

The account of the changes in the materials brought about by cooking shatters two of the doctrines held dear in schools of cookery: the authors state that no evidence whatever could be found for the existence of a pellicle (traditionally attributed to coagulation of albumin) on either meat or vegetables. The losses during cooking were unaffected by "setting the juices." They have found, too, that the waste incurred by throwing away the water in which vegetables have been cooked is surprisingly small. "Conservative methods of cooking vegetables," they say, "are unlikely to increase the calcium, phosphorus, and iron in a mixed diet by more than 3 per cent."

[1] The Nutritive Value of Fruits, Vegetables, and Nuts. By R. A. McCance, E. M. Widdowson, and L. R. B. Shackleton. Medical Research Council, Special Report Series No. 213. H.M. Stationery Office. 1936. Pp. 107. 2s.

AFTER-CARE IN CHRONIC ARTHRITIS

To achieve the best therapeutic results in osteo-arthritis, according to John G. Kuhns and Robert J. Joplin,[1] the patient must be medically supervised for at least two years after he leaves hospital. An account of 661 cases treated in the Robert Brigham Hospital and subsequently followed up reveals some encouraging facts. Of these cases of arthritis, 423 female and 238 male, 452 were diagnosed as atrophic arthritis, 198 as hypertrophic, and 11 as gonorrhœal.

[1] New Eng. Jour. Med., August 13th, 1936, p. 268.

The average stay in hospital of the atrophic arthritics was 11½ months and their average age on admission was 37 for men and 38 for women. Cases of Strümpell-Marie's and Still's disease were included in this group and the total mortality amounted to 77; 29 could not be traced, but of the known survivors about two-thirds are now working and able to support themselves. The hypertrophic type ran a less severe course. Their average stay in hospital was only 5½ months and their average age on admission was 57. There was naturally a higher proportion of deaths in this older hypertrophic group than among the atrophic cases, but of the 169 survivors, 115 are able to work. The small series of gonorrhœal cases showed much the same result, 7 of the 11 being now able to work. After-care, carried out in the patient's own home if this is considered by the social service to be suitable, consists in giving him written instructions about rest, activity, diet, drugs, orthopædic exercises, physiotherapy, and any apparatus worn. The treatment is supervised by a visiting nurse, who reports any difficulty at once and the patient frequently attends the clinic for examination and advice. From time to time he is readmitted to hospital for laboratory tests, special medication, plaster casts, or orthopædic operation as may be necessary. The greatest number of good end-results was seen when thorough and continuous after-care was possible. Without it, patients became discouraged, resorted to quacks, and got worse. Nor did patients left to the care of their own doctors fare much better, the doctor often lacking the necessary knowledge or interest in this type of case. Apart from not infrequent relapses, concomitant organic disease, notably arterio-sclerosis, nephritis, and myocarditis, hindered or prevented recovery in some cases. The writers hold that social responsibility does not end when the disease has become inactive. Training, vocational guidance, and the finding of work for these patients are duties which will prove economically profitable to the community. This paper is interesting but, in view of the importance of efficient after-care, this might with advantage have been discussed in greater detail.

THE HARVARD TERCENTENARY

THE appearance at the present time of Harvey Cushing's war diary, reviewed on another page, is opportune for two reasons. In the first place though not meant as pacifist propaganda, it strips war of glamour and may have some influence on those among its readers who in their ignorance and folly still see something noble in war as a means of settling international disputes. And secondly, its publication at the time of the celebration of Harvard's Tercentenary emphasises the close relationship which has existed between this country and the university which now stands pre-eminent in the United States. Harvard took its name from a citizen of the borough of Southwark, and in the chapel built in Southwark Cathedral by former students and friends of the university a special service was held on Sept. 18th last as a small part of the celebrations. Boston has always been regarded as the most English of the great American cities, and in recent years exchange studentships and professorships between the Harvard Medical School and our own universities and hospitals has strengthened the ties which were formed in the days of the Bigelows, J. C. Warren, and Oliver Wendell Holmes. It was with a Harvard unit that Harvey Cushing came to France in 1915; and one of the few good things which came out of the war was the opportunity it afforded for meeting old friends and for making new friendships between the medical men of the British Empire and the United States of America.

CHLORINATION OF DRINKING WATER

CHLORINE is an effective means of sterilising drinking water and is largely used for this purpose in all parts of the world. Since, however, water treated with chlorine frequently develops tastes and odours which are disliked by consumers, and seems to have been especially disliked by the gallant defenders of Verdun, the process known as "verdunisation"—in which doses much smaller than the optimum dose as determined by the orthotolidene test, are used—has been advocated. Rao Sahib T. N. S. Raghavachari and P. V. Seetharama Iyer, working at the King Institute of Preventive Medicine, Guindy, Madras, have found[1] on applying such minimal doses of chlorine to 100 samples of water, from different sources scattered over the Madras Presidency, that *clear* waters from wells, galleries, and filter plants can be sterilised by amounts of chlorine from a fifth to a tenth of the optimum. They remark "should these . . . laboratory experiments be confirmed on a plant scale, the process would result in (1) effecting considerable economies in the chlorination of water-supplies; (2) ensuring relative freedom from taste and odour troubles; and (3) dispensing with the need for laboratory control of the process from day to day."

The optimum dose is considered to be that which will leave 0·1 to 0·2 parts per 1,000,000 of free chlorine after 20 minutes contact, and it is reasonably certain that such an excess will ensure the destruction of all micro-organisms, except of those hardy and little investigated species which seem to withstand the action of mild doses of chlorine. It is possible that excesses of this order are unnecessarily large. An appeal to theory would seem natural in such a case, but unfortunately there is no theory at all well established. The author of the Verdun process, Col. Bunau-Varilla, invokes the action of ultra-violet rays emitted by the chemical action resulting from the contact between the organic matter of the water and the particles of chlorine distributed in the whole mass of water by the violent agitation (which he considers an essential of his process) to which it is submitted. But are ultra-violet rays actually emitted in this process? It seems possible that direct addition of chlorine to protein molecules of the bacteria may so profoundly modify them as to kill the organisms, and that the rate at which this occurs is determined by the relative rates at which competing bacterio-protein and the dead organic matter in the water can take up chlorine. Alternatively, chlorine may act as an oxidising agent or hydrogen acceptor, modifying the bacterial protoplasm, competition between dead and living matter again affecting the speed of action and the need for excess. Little is known of the nature of the organic compounds present in natural water and not much of those making up the cells of bacteria, and a sound theory can hardly be established until experiments have been made under conditions simpler than are possible in a medium so complex as drinking water. In the meantime the work from the King Institute shows that in many cases sterilisation can be effected by using doses of chlorine smaller than standard routine would suggest. Whether economy, freedom

[1] Ind. Jour. Med. Res., July, 1936, p. 103.

from taste, and lessened need for control compensate for uncertainty as to the continuing efficiency of so small an excess of chlorine is a matter for careful consideration. The degree of pollution and the liability of this to vary will be deciding factors.

PSYCHIATRIC DEMONSTRATIONS AT ST. GEORGE'S HOSPITAL

MANY years ago Dr. James Collier started a series of neurological demonstrations at St. George's Hospital which, since his death, have been continued by Dr. Anthony Feiling at fortnightly intervals. These demonstrations are held at 5 P.M. on Thursdays during term time. They are not confined to students of the hospital and attract large audiences from outside. It is now proposed to start psychiatric demonstrations to alternate with these neurological demonstrations, which will be continued as before. Dr. Edward Mapother and the senior medical staff of the Maudsley Hospital are coöperating with Dr. Desmond Curran, psychiatrist to the hospital, in giving these lectures. This will have the additional advantage that the cases can be drawn from the abundant clinical resources of the Maudsley Hospital. The first of the new demonstrations will be given by Dr. Mapother on Thursday, Oct. 15th, at 5 P.M.

THE HYPOCHROMIC ANÆMIA OF PREGNANCY

HÆMATOLOGY is growing so complex that it is difficult to keep abreast of its developments. No sooner have the ætiological factors in the development of a particular anæmia been satisfactorily determined, than a mass of new evidence is produced which necessitates a completely different view. It has been generally accepted in the last six years that the hypochromic anæmia of pregnancy is largely due to the increased demands made by the fœtus for iron; that the anæmia, in fact, is due to the pregnancy. H. W. Fullerton now declares [1] that the assumption that uncomplicated pregnancy frequently produces a severe degree of hypochromic anæmia is not tenable, and that even in women of the poorer classes the transference of iron from the mother to the uterus and its contents is compensated wholly or to a large extent by dietary iron. F. H. Bethell in America has come to a similar conclusion.[2] He believes that the occurrence of hypochromic anæmia in pregnant women is not to be found primarily in the circumstances incident to gestation but should be sought in the status of the hæmopoietic mechanism prior to conception. Both workers consider that the anæmia is one which has existed before pregnancy but has been unmasked by physiological hydræmia. Bethell describes iron balance observations continued over the last 63 days of pregnancy and the first 12 days after delivery which show that the iron and copper output during the period approximately equalled the intake. In spite of the fact that these elements were not retained there was no anæmia in mother or baby. Fullerton calculates that the iron saved by the absence of menstruation during the period of gestation and lactation more than compensates for any iron lost to the fœtus. On the other hand, he considers that the blood loss at parturition though variable in amount may in many cases, especially in the presence of severe dietary deficiency, result in a severe hypochromic anæmia. He believes that the blood loss of menstruation and parturition are more potent factors in causing anæmia than pregnancy itself. Owing to the iron-poor diets of so many working women this blood loss can never be corrected. This work is obviously of great theoretical interest. Whatever the cause of the so-called hypochromic anæmia of pregnancy the practical truth remains, as clearly demonstrated by J. C. Corrigan and M. B. Strauss [3] and Fullerton himself, that the hæmoglobin can be kept at a satisfactory level with real benefit to the general health of mother and child by giving the mother large doses of iron throughout pregnancy. The woman may be anæmic before pregnancy, but she does not consult a doctor. It is only when pregnancy intervenes that medical aid is sought. The available figures show that it is essential that for the present all women should take iron in adequate doses throughout pregnancy.

[1] Brit. Med. Jour., 1936, ii., 523, 577.
[2] Jour. Amer. Med. Assoc., 1936, cvii., 564.

THE ROYAL MEDICAL BENEVOLENT FUND

WE publish this week a letter from Sir Thomas Barlow, president of the Royal Medical Benevolent Fund, asking for support for the Christmas gifts which of late years have been regularly found for the annuitants. Sir Thomas refers to a hesitation in asking for more, because of the response to the recent centenary appeal, but he quotes a letter from one of the annuitants which shows how welcome the small addition to resources is to many—some 700 or 800 helpless persons, who are compelled to count their incomes by pennies. To these the withdrawal of an expected addition would be a sad disappointment, and we are certain that few of our readers will consider themselves absolved from any obligation to subscribe to the Christmas gifts fund because they have already supported the centenary appeal. That appeal, as far as figures have yet come to our notice, has not had the hoped for result—indeed, without Sir Thomas's own great donation of £1000, the figure attained was not such that should lead the medical profession to think that when so much had been accomplished no more was required. The Fund has many on its books for whom the support of the whole profession is needed if misfortunes in our ranks are to be relieved, and we hope that Sir Thomas's appeal for Christmas gifts with which to supplement the annual grants will meet with a generous response.

VASCULAR TUMOURS OF MUSCLE

HÆMANGIOMATA of skin and subcutaneous tissues are the commonest tumours of infancy and childhood, but these growths are rare in other situations. Mr. F. Forty, who recently described in our columns [4] a vascular tumour in the extensor hallucis brevis muscle directs attention to an interesting group of deeper-seated hæmangiomata which might reasonably be diagnosed before operation if the possibility of their occurrence is kept in mind. Since Liston described the first case in 1843, over 260 cases of hæmangiomata in muscle have been reported. As E. N. MacDermott [5] has pointed out, hardly any muscle is immune, but the tumours have a predilection for the lower extremity, especially the quadriceps, hamstrings, and gastrocnemius. In the upper extremity, the triceps and latissimus dorsi are most frequently involved. Like hæmangiomata of superficial tissues, these are tumours of infancy and childhood, 80 per cent. occurring before the age of 20. The clinical features vary considerably, but the common finding is a tumour mass, round or ovoid, varying in size from a nut to an egg, growing slowly and at first

[3] Jour. Amer. Med. Assoc., 1936, cvi., 1088.
[4] THE LANCET, Sept. 19th, 1936, p. 676.
[5] Brit. Jour. Surg., 1935, xxiii., 252.

painlessly. The tumour is usually diffuse and often tender. The consistency varies with the amount of fibrous tissue present and may be soft, elastic, or hard. The overlying skin is normal in appearance or occasionally bluish, and is freely movable over the swelling. Pain develops usually at some time in the course of the disease. At first it is an ache coming on with use of the muscle and disappearing with rest, but in advanced cases radiating or tingling pains may be complained of. Some degree of functional impairment of the limb is nearly always present. Diagnosis is difficult and was made before operation in only 8 per cent. of the recorded cases. The tumours were usually mistaken for lipomata, cysts, cold abscesses, or sarcomata. The withdrawal of blood by an exploring needle and the demonstration of phleboliths by X rays are helpful indications.

Following Muscatello, these tumours have been classified histologically according to the predominating vascular structure. The cavernous hæmangioma is the most common, but arterial, venous, and capillary hæmangiomas are also described. Since these tumours occur during the first three decades of life, they have been regarded as congenital in origin. Hæmangiomata are generally considered to arise from a failure of certain angioblastic cells to establish contact with the remainder of the developing vascular network of the embryo. This results in the capillary hæmangioma, which consists of a mesh of minute irregular blind channels through which the blood of the general circulation does not pass. The cavernous hæmangioma, on the other hand, is held to result from the establishment of a connexion between the general circulation and the fine channels of the capillary type of tumour, and this may be initiated by trauma. In muscle hæmangioma, trauma is mentioned as a factor in under 20 per cent. of the cases. R. Mailer [6] stresses the importance of the traumatic factor in the ætiology of these tumours, and considers that a congenital factor need not be postulated universally. F. Settergren,[7] of Stockholm, comes to a similar conclusion, but points out that it is impossible to exclude the possibility of a small primordial growth which may be stimulated by trauma into activity and thus becomes clinically obvious. The treatment of these tumours is by wide excision. The prognosis is excellent; recurrences are rare and are due to incomplete removal. If excision has been difficult, post-operative radiation is advised.

NARCOTIC DRUGS: SUPPLY AND DEMAND

THE report of the Permanent Central Opium Board to the Council of the League of Nations at its present session dealt among other things with the excess of estimates furnished by certain countries of the narcotic drugs required for the current year. These statistics of manufacture for domestic consumption, for conversion into other drugs, for stock replenishment and for export are required from the Contracting Parties under the Drugs Limitation Convention of 1931. They enable the supervisory body each year in Geneva to prescribe annually in advance the basis on which legitimate trade and manufacture shall be carried on. They also disclose instances of excess of manufacture, which in some cases could have been avoided if more accurate estimates had been supplied in advance. In 12 cases (as compared with 29 cases in 1934) the Board notified Governments, in accordance with Article 14 of the Limitation Convention, that certain estimates had been exceeded, and warned them that, unless the circumstances are exceptional, no new exports to the countries in question will be authorised unless and until supplementary estimates shall have been received. The total manufacture of morphine for 1935 was 31,427 kg., or 4649 kg. more than in 1934, due mainly to morphine manufactured, not for conversion, but for use as such. There was a marked diminution in the manufacture of heroin—namely, 674 kg.—a reduction of 39 per cent. on the figures for 1934. The reduction was especially marked in the case of Japan, where manufacture had been excessive; 250 kg. of heroin being the output for 1935 against 547 kg. in 1934. The estimate for cocaine was 4003 kg., or 539 kg. more than in 1934; but neither in this case nor in that of morphine does the Board consider that the average manufacture for the last three years exceeds normal consumption requirements.

[6] Brit. Jour. Surg., 1935, xxiii., 90, 245.
[7] Acta chir. Scandinav., 1936, lxxviii., 289.

THE CRYSTAL PALACE BABY SHOW

WHAT was advertised to be a national baby show on a grand scale was held at the Crystal Palace, Sydenham, on Saturday, Sept. 19th. This event, organised, we learn, by a local councillor and advertising agent of Romford, Essex, was ill conceived and soon raised opposition which should have led to its abandonment. But such a venture is easier to start than to suppress, so the exhibition did take place—a pitiable fiasco which has left an evil taste and might have done great damage to maternity and child welfare had those responsible for that great social movement had anything to do with it. Fortunately the official and voluntary bodies which carry out child welfare refused to participate in the show: most, passively, by refusing to countenance or advertise it; a few, such as that of Croydon, with public protests. If the exhibition had been a success it would have been a serious set-back to the cause of State medicine, so in its failure we have cause for satisfaction—but not for rejoicing, for the spectacle was in itself distressing. In 1918, when Parliament passed the Maternity and Child Welfare Act, local authorities and their officers were faced with a new function and some means of advertising it was desirable, for the official method of introducing new laws and regulations does not easily reach those for whom they are intended. Amongst means of propaganda local baby shows on a small scale had much to recommend them and were favoured, though the disadvantages inseparable from such exhibitions were recognised. The baby show did at first do much to bring infant welfare to the notice of the people; but its value passed quickly and its drawbacks led to its gradual abandonment. Child welfare now rests on its intrinsic merit and though in some districts it still needs an occasional fillip, it loses instead of gains by reversions to such propaganda.

WASTED LIVES

ONE of the distinctive features of our modern civilisation is its refusal to accept a great deal in the way of suffering and frustration of human life which our forefathers, and even our grandfathers, regarded as inevitable. At intervals we are presented by some new writer, using perhaps a fresh method of presentation, with the challenge to look at the badness of things and to change them. Charles Kingsley's "Alton Locke" in the 'fifties, "The Bitter Cry of Outcast London" in the 'eighties, Alexander Paterson's "Across the Bridges" a couple

of decades ago, were all of them powerful and in considerable measure successful appeals to the conscience of the public. "Wasted Lives" by W. F. Lestrange[1] is a book of this kind. The author compels us to look at some of the sights which have horrified him, and then asks what we are going to do about them. Quite literally he makes us see what he has seen, for the outstanding merit of the book is the abundance of excellent photographs—that is to say, horrible photographs—which illustrate it. We are shown the slum home, both outside and inside, and the miner's hovel, and the wasted and distorted children of the slum. He has photographed the blind alley boy and the unemployed man, and the derelict works and derelict population of our depressed areas. And the effective photographs are accompanied by some poignant stories and records of conversations. The other side of the picture is fairly presented; there are some cheerful pictures of boys in the better senior schools and apprenticeship schemes of this country. But the emphasis is chiefly on the bad things. That is legitimate, for it is the bad things which need to be changed, and can only be changed by an awakened public opinion. And it requires a forcible presentation, and a certain vehemence to destroy the complacency which is the natural state of the comfortable.

It is not in scientific analysis that Mr. Lestrange's book is strong, nor has he constructive suggestions to make which are of much value. Indeed those who are familiar with social problems, and with the technique of social service, will have little to learn from it, and will find many defects. But it is the kind of book to put in the way of comfortable moles, of whom there are even to-day a surprising number. They will find in it a vivid presentation of the tragedy which is played continually and by a multitudinous caste, the negation of hope after hope and the denial of chance after chance to the child who might become a healthy, intelligent, and self-respecting worker and citizen, but who does become quite unnecessarily the derelict whom this book so vividly displays. Such books make public opinion and so change abuses.

BOTULISM

THE four deaths from botulism which were the subject of comment in our columns a year ago[2] were not the only cases of the disease occurring in London last year. An independent case was recognised in the Hammersmith Hospital a few weeks later and is the subject of a detailed clinical, pathological, and bacteriological report on p. 780. From the vegetable nut-brawn which caused the first group of intoxications Dr. C. R. Lane[3] later isolated the *Bacillus botulinus* in pure culture and proved its toxin to be of the A type. Dr. Miles has isolated the organism (under its modern name of *Clostridium botulinum*) from the remnants of a meat pie which was the source of the intoxication in the Hammersmith case, and has found it to produce Type B toxin. These, with the famous Loch Maree outbreak (due to a Type A toxin), appear to be the only fully proved and recorded examples of botulism in this country. They make it clear that both A and B types of intoxication can occur here, although strains of the bacillus hitherto isolated from English soils have always produced B toxin; strains of both varieties have been found in Scottish soils. The more important part of Dr. Miles's investigation is his demonstration that conditions suitable for growth of the organism and toxin formation can be present in the granules of cooked meat, with surrounding gravy, that constitute the inside remnant of a half-eaten open meat pie—a demonstration somewhat disquieting. Botulism is clinically so characteristic that outbreaks involving groups of people are likely to be easily recognised; milder or sporadic cases, however, are still apt to be missed, simply because the possibility of botulism does not come into the doctor's head. These case reports and others like them[4] are therefore useful reminders. Therapeutic serum is available from the Ministry of Health, and the only hope—admittedly a slender one—of influencing the course of the disease lies in its early administration; a prompt diagnosis in the first case of an outbreak may make it possible to protect with serum some other persons who have eaten the suspected food.

LIMITS OF ACCURACY IN BIOLOGICAL ASSAY

MOST of us were imbued in childhood with a simple faith in the results obtained by honest calculation. Our sums, if worked according to rule, would assuredly "come out right," and if they "came out wrong" we were to try again, since the fault must lie in our technique. Even when examples were concerned with such variables as the speed of cars meeting and passing, the amount of water required to fill a bath, or the value of half a herring, we soon knew better than to suggest that account should be taken of the skill of the driver, the splashing of the bather, or the inclusion of roe in the half-herring. It was not until we reached a more advanced stage of education that smug satisfaction with a result carried to five places of decimals was dispelled by a demonstration of the absurdity of attempting to reach this degree of accuracy in the particular problem set.

Similarly, with the extension of our therapeutic armamentarium, confidence in the precision of some of the standards set by the British Pharmacopœia has had to go. The chemical methods of assay used for pharmaceutical preparations are usually so accurate that it has never been necessary to measure their errors; but the errors of biological methods employed for the assay of vitamins, antitoxins, and sera are so large that it has become necessary to devise special means for calling attention to them. The usual method of expressing the error of any test is to state the standard error; but lest persons unacquainted with statistics should suppose that these biological tests are more accurate than they are in fact, a subcommittee appointed by the B.P. Commission to consider and report on the limits of error propose[5] that the figure given in the B.P. should be some multiple of the standard error and should represent an error which is scarcely ever exceeded in practice.

The Addendum to the B.P. 1933 just issued contains, among other material, biological methods for the assay of vitamins, antitoxins, and antibacterial sera. An estimate has been made of the error of these methods, which is expressed in each case by using the term "limits of error (P = 0·99)." In order to arrive at a precise statement as to the

[1] London: George Routledge and Sons, Ltd. 1936. Pp. 128. 7s. 6d.

[2] THE LANCET, 1935, ii., 559.

[3] Ibid., 1935, ii., 717 and 1377.

[4] Caprio, F. S.: Jour. Amer. Med. Assoc., 1936, cvi., 687; May, E., et al.: Bull. et mém. Soc. méd. hôp. de Paris, 1936, lii., 1024; Blumberger, K., and Gross, H.: Deut. med. Woch., Sept. 4th, 1936, p. 1451.

[5] British Pharmacopœia Commission. Reports of Committee No. 10. Report of the Sub-Committee on the Accuracy of Biological Assays. Published by authority of the General Medical Council. London. 1936. Pp. 24. 1s. 6d.

limits of error the arbitrary convention has been adopted that for practical purposes a probability (P) of 0·99 is equivalent to certainty. Thus the statement that the limits of error (P = 0·99) are 50 and 200 per cent. means that it has been estimated that in 99 tests out of 100 the result will be greater than 50 and less than 200 per cent. of the true result. A concrete example taken from the report of the subcommittee is the curative test with pigeons for preparations containing vitamin B_1; in an experiment in which 10 pigeons receive the standard preparation and 10 pigeons receive the preparation being tested, and in which the percentages of responses are equal, the limits of error (P = 0·99) are as great as 15 and 650 per cent. Figures given in an appendix to this report show how much the error of the vitamin tests can be reduced by using more animals—for example, when 40 pigeons are used for this test the limits of error are 27 and 377 per cent. and when 80 are used 39 and 255 per cent. It should be noted that the limits of error in this particular test are exceptionally great. In the other method of assay quoted for vitamin B_1, based on the increase of weight of rats which have ceased to grow while receiving a diet deficient in vitamin B_1, the limits of error are 65 and 154 per cent. using 10 rats, and 74 and 135 per cent. using 20 rats. Comments on the report are invited, as these will assist the Commission and its subcommittee in dealing with similar questions in relation to other biological assays than those described in the Addendum.

PHOTOGRAPHY IN MEDICINE

"A GOOD picture is worth a thousand words" and photography has proved invaluable for faithfully recording perishable and ephemeral material. The scientific journals and books were among the first to use it as soon as the process engravers had made clear reproduction possible. Lately, however, some of the standard text-books have been returning to drawings with pen and brush by artists experienced in medical work; the camera may not lie but its very truthfulness may often obscure the main point by the mechanical reproduction of irrelevant detail. But this change has also been due as much to the stagnation in scientific photography as to the increased skill of medical artists. In a useful article on clinical photography in dermatology [1] Dr. D. J. Kindel pleads for more care in arranging the surroundings and in posing the subject. A lesson is also being learnt from commercial photography and there have recently been great improvements in design, accent, and display.

The illustration of gross lesions or operations is no longer, however, the chief use of photography in medicine. Mr. A. E. Iles, in his presidential address to the Bristol Medico-Chirurgical Society,[2] gave an account of the development of other functions in relation to medicine. He instanced besides photomicrography and radiography (with and without opaque substances and stereoscopy) the use of infra-red and ultra-violet rays in diagnosis and in forensic medicine, and of the slit-lamp and the Nordensen camera in ophthalmology. In spite of these recent advances the widest application of photography is probably still to record the clinical appearance and progress of patients, and at least two inventions may become responsible for making photographs as important in the case notes as temperature charts and pathological reports. The first of these is the "miniature" camera, from the negatives of which greatly magnified but well-defined prints can be made. The short focus and small film enables a very fast lens and short exposure to be used. All the equipment of the large camera is now available, and the whole field from photomicrography to telephotography is open to the possessor of a tiny one. Dr. Kindel suggests that these cameras should be used also for copying radiograms, since many thousands of negatives could be stored in the space occupied by a few dozen films; these can easily be projected on a screen with very clear definition. The other advance that is likely to prove very valuable is well shown in the annual exhibition of the Royal Photographic Society, now being held in London, where a remarkably fine exhibit of colour photography by Lieut.-Colonel E. T. Burke and Mr. N. W. Hewitt is to be seen. The prints demonstrate the appearances of the skin in arsphenamine dermatitis and post-arsphenamine pigmentation, in keratodermia blenorrhagica, and in gummatous ulceration of the chin. There are also some microphotographs in colour illustrating the uses of various histological stains by Mr. F. J. Pittock.

At this exhibition also Dr. Howard McCordock exhibits four photomicrographs of echinococcus scolices. An ingenious method of demonstrating radiograms is shown by Mr. A. W. Fuchs under the name of 'pseudo-relief or plastic print.'" These are produced by throwing a negative film and the positive film made from it slightly out of register; a print from the superimposed films is made and an impression of light and shade is given that simulates low relief. A prize offered by Prof. Woodburn Morison was won by Mr. G. Lovell Stiles for radiograms of a barium meal showing diaphragmatic hernia. The fundus oculi was the subject of a photograph taken in red-free light by Mr. E. F. Fincham, demonstrating well the details of the blood-vessels and nerves. Since many hospitals now have photographic departments a special exhibition from these might well be organised.

ON Thursday, Oct. 15th, at 4.15 P.M., at the London Hospital medical college, Dr. John Ryle, regius professor of physic in the University of Cambridge, will deliver the Schorstein lecture on anorexia nervosa.

SUMMER Time, which commenced in Great Britain, Ireland, the Channel Islands, and the Isle of Man on Sunday, April 19th, will cease on Sunday next, Oct. 4th, at 3 A.M., when the hands of timepieces should be put back to 2 A.M. The hour 2–3 A.M. Summer time will thus be followed by the hour 2–3 A.M. Greenwich time.

DURING the International Cancer Congress held in Brussels last week (and briefly reported on another page), Prof. E. L. Kennaway, M.D., F.R.S., and Mr. J. W. Cook, D.Sc., jointly were awarded the prize offered by the International Union against Cancer for scientific work on cancer. The prize consists of 50,000 Belgian francs together with 50 milligrammes of radium, and is the gift of the Union Minière du Haut Katanga. Prof. Kennaway and Dr. Cook will, we understand, use the radium for their research work at the Royal Cancer Hospital.

SURGICAL INSTRUMENT MANUFACTURERS' ASSOCIATION.—The annual dinner of this association will take place at the Holborn Restaurant, London, W.C., on Friday, Oct. 16th, at 7 P.M., when the principal guest will be Mr. N. St. J. Buxton.

[1] Med. Bull. Univ. Cincinnati, 1935, ii., 120.
[2] Bristol Med.-Chir. Jour., Spring, 1936, p. 3.

PROGNOSIS

A Series of Signed Articles contributed by invitation

CXV.—PROGNOSIS IN HYPERTENSION

THERE is some difference in opinion as to what constitutes a pathological blood-pressure reading. The commonly held view that the normal figure can be expressed by "age plus 100"—e.g., that the normal blood pressure at the age of 30 is 130, or at age 60 is 160—is most fallacious. It has been shown by H. A. Treadgold, for example (THE LANCET, 1933, i., 733), that there is little variation in the systolic blood-pressure readings between the ages of 18 and 40, the average figures being 122 at ages 19 and 20, and 125 at ages 36 to 39. So also Symonds (Jour. Amer. Med. Assoc., 1923, lxxx., 232) found average systolic readings of 124 at ages 20 to 30, and 125 at ages 35 to 40, though he obtained slightly higher averages at 50 to 55 (130) and at 55 to 59 (133). It is in fact a mistake to attempt to lay down too rigid a figure for a normal blood pressure at any age. It must be remembered that the figures quoted above were *average* figures taken from a very large number of individuals; of the healthy R.A.F. pilots who formed the material for Treadgold's statistics, 6 per cent. had systolic pressures of 140 and over. Moreover the blood pressure of a normal individual may fluctuate widely from day to day, and sometimes almost from moment to moment. It is notorious that emotional disturbances may bring about very considerable rises of systolic, and, to a less extent, of diastolic blood pressure in highly strung but otherwise quite normal subjects. As a general rule it may be said that a sustained systolic blood pressure of over 160 must be taken as being pathological at all ages under 60, though above this age a little more latitude might be allowed. As to the diastolic blood pressure, it is generally agreed that this reading is always infinitely more important than is the systolic. For example, one would regard a blood pressure of 150/110 far more seriously than a blood pressure of 180/90. Speaking generally, it may be said that a diastolic figure of 100 is nearly always pathological; I used to regard this figure as being invariably pathological, but experience has taught me that in nervous subjects emotion alone may increase the diastolic blood pressure *temporarily* as high as 100 or even 110, the systolic readings in such an individual swinging up to 180 or even higher.

Before we attempt to evaluate a blood-pressure reading it is of course essential to adopt a sound sphygmomanometric technique, with attempts to secure muscular and mental relaxation, and to take several readings, the lowest being accepted as the true reading. There is still a tendency to exaggerate the prognostic significance, per se, of a raised blood-pressure reading, taken, for example, during examination for life insurance, or by an examining medical board. It is common knowledge that the consultant almost always finds a much higher blood-pressure reading than does the general practitioner, who is well known to the patient and examines him in his own home.

Having decided then that a condition of hypertension does in fact exist, and that this is not merely a temporary and emotional phenomenon, we must next endeavour to decide whether we are confronted by a case of essential hypertension, or whether the high blood pressure found is associated with some other disease. The only common disease with which a persistent hypertension is associated is glomerulo-nephritis, acute or chronic. Less common causes of hypertension are urinary obstruction and toxæmia of pregnancy. Rarer causes are increased intracranial tension, adrenal or pituitary tumours, polycystic kidneys, and coarctation of the aorta. In parenthesis it may be said that if the femoral pulses were investigated in every case of hypertension, and a radiological examination of the heart and ribs were made where the femoral pulses are feeble or absent, coarctation of the aorta would be less of a curiosity than it is at present.

The systolic blood pressure is often high in aortic regurgitation, in Graves's disease, in arteriovenous aneurysm, and in complete heart-block; but in these conditions the diastolic pressure is not raised, and it may be depressed. The prognosis of these symptomatic hypertensions will not be discussed here, the prognosis being that of the associated or causative disease.

ESSENTIAL HYPERTENSION

The *family history* is of supreme importance here. The prognosis must inevitably be a serious one where there is a bad family history of early death from cardiovascular disease. Conversely we feel more optimistic about a hypertensive patient if his forbears on both sides have been long-lived. In the patient's *personal history* we lay stress on a past history of nephritis, suggesting as it must that the hypertension is not essential but renal, and consequently more serious. Indulgence in alcohol or tobacco to excess and a life of constant stress are unfavourable factors. With regard to *sex*, there is no question that generally speaking the outlook is far more favourable in women than it is in men. This is particularly the case when hypertension appears at the time of the climacteric. The menopausal woman may suffer from very severe symptoms, such as excruciating headaches, sometimes requiring venesection for their relief, from vertigo, from tachycardia, or from anginal symptoms so violent as to be mistaken for a coronary occlusion; her tension may soar to prodigious heights—220/110 or even higher. It must be remembered that hypertension may become manifest in these women a year or more before the periods cease, and that it may endure ten years or even more after the last period, when the unfortunate patient, and sometimes also her doctor, fondly imagine that "the change" is finished. Given a clean family history and no abnormal physical signs, the prognosis in these patients is entirely favourable. Nevertheless an unwarrantedly gloomy prognosis is often given to them, and they are sometimes subjected to unnecessary and irksome dietetic restrictions. Even where there is obtrusive evidence of structural change associated with hypertension—e.g., hard arteries, enlarged heart, or even retinal changes—the outlook is usually more favourable in the female than in the male.

Age.—The younger the patient, the more serious the prognosis. A really gross hypertension discovered in the thirties nearly always runs a rapid course to a fatal termination. Conversely, hypertension appearing in late middle life is often almost symptomless for many years.

PHYSICAL SIGNS

There is general agreement that the outlook is worse in obese subjects than in those of spare build. At the same time it must be remembered that spare individuals do sometimes succumb to a malignant type of hypertension, and also that rapid loss of weight may be one of the symptoms of this condition. Volhard classified hypertensives according to the patient's complexion, as "red" or "pale," the former tending to run a benign and the latter a malignant course. It is quite true that many malignant hypertensives are pale, but on the whole the complexion is an unreliable prognostic guide in hypertension generally.

The finding of *thickened arteries*, and of *cardiac* or *aortic enlargement* naturally adds to the gravity of the prognosis, though these findings are quite compatible with many years of comparatively good health. More ominous findings are *pulsus alternans* and *gallop rhythm*, both of which, if continuous, suggest death within a year or so. The onset of *auricular fibrillation* also adds to the gravity of the case, though I have known hypertensives to fibrillate but nevertheless to maintain fair health for five years and more.

Electrocardiographic examination is sometimes helpful, especially if serial electrocardiograms demonstrate a progressive myocardial change. The finding of such a condition as a bundle-branch block does not necessarily indicate impending cardiac failure, for this condition, if stationary, is quite compatible with years of cardiac efficiency. As to the prognostic importance of the actual blood-pressure reading, generally speaking the higher the *diastolic pressure* the worse the prognosis. Not too much attention, prognostically, should be paid to the systolic pressure.

A common mistake is to regard any *retinal changes* as being of grave significance. It is quite true that renal neuro-retinopathy, characterised by optic papillitis, retinal œdema, and patches of "cotton-wool" exudate, is usually followed by death within a year; but the arterio-sclerotic or hypertensive retinopathy as described by Foster Moore—characterised by the irregular retinal arteries which compress the veins and may be associated with a few renal hæmorrhages, but without optic papillitis or retinal œdema—is not nearly so ominous.

The presence or absence of *albuminuria* is not nearly as important as it is usually considered to be. Far more important is the *specific gravity* of the urine. A night urine of low specific gravity, and a day urine whose specific gravity is fixed at 1010 after drinking a pint of water, is of far more ominous significance than is albuminuria. If the specific gravity of the urine is not satisfactory a urea-concentration test should be done, and if this is not normal, the blood-urea should be estimated. Evidence of impaired renal function adds to the gravity of the outlook in proportion to the degree of impairment; but I recently saw a woman whose blood-urea had been persistently above 150, and had on occasions exceeded 200, during a period of more than two years, without any serious incapacity. Evidence of rapidly progressive renal inadequacy is always of serious import. It must not, however, be forgotten that a temporary nitrogen retention may be caused by hypertensive cardiac failure, so that if there is evidence of such cardiac failure, and if the specific gravity of the urine is high, some recovery of renal function may be hoped for if the cardiac condition responds to treatment.

SYMPTOMS

Certain symptoms of the hypertensive patient are perhaps more important, prognostically, than are the physical signs; dyspnœa on slight effort and, more still, paroxysmal nocturnal dyspnœa, are serious symptoms. Attacks of acute left ventricular failure (cardiac asthma) are often fatal, but sometimes there may be a surprising degree of recovery from a solitary, though desperately alarming, attack of this nature. Anginal symptoms certainly make the life a somewhat precarious one, but it may continue to be precarious for many years. The appearance of cerebral symptoms, "slight strokes," or even the more serious attacks of hypertensive encephalopathy naturally make us fear further trouble of this nature. At the same time we often see hypertensive patients who survive for years after an attack of hemiplegia, even if followed by other cerebral vascular lesions. Finally it may be said that on the whole hypertension is regarded a little too seriously, both by the lay public and by the medical profession; and that very important factors in the prognosis are the sanity of the patient—and of his doctor.

MAURICE CASSIDY, M.D., F.R.C.P.,
Senior Physician to St. Thomas's Hospital.

MEDICINE AND THE LAW

Unsuccessful Claim against Dentist

IT could hardly be accounted negligence on the part of a dentist if new dentures for a patient were not a perfect fit at the first attempt. In a case at the Manchester county court not long ago the judge observed that it was well known that false teeth "required time to settle." The patient had claimed £29 8*s*. as damages for breach of contract. She said she paid her dentist this sum for a double set of teeth which he undertook would be of excellent make and a perfect fit. The first set was uncomfortable and she had them remodelled. Afterwards she found them so painful that she could neither eat, speak, nor sleep; moreover, she graphically complained, they shut like a trap. She took them back to the surgery, and, after an interview which was evidently wanting in harmony, left them there. The dentist's defence was straightforward. He said he did not maintain that the teeth were a perfect fit, but all they needed was a little adjustment; he was willing to make a new set if necessary. Expert witnesses were called on his behalf who said that some adjustment, which it was quite usual to make, would have resulted in a proper fitting. Accepting this view, and holding that the plaintiff had never given the defendant the chance to complete his work, the judge gave judgment with costs in favour of the dentist.

EDENBRIDGE HOSPITAL.—On Sept. 19th a new block to this hospital was opened, consisting of a consultation clinic and additional bedrooms for nurses. The cost has been £2800, of which £2300 has been raised, and a further appeal for £250 for equipment made at the opening ceremony was answered by an anonymous donor who promised the whole amount.

SPECIAL ARTICLES

MAINTENANCE COSTS IN HOSPITAL

BY ANDREW TOPPING, M.D. Aberd., D.P.H.
A SENIOR MEDICAL OFFICER, LONDON COUNTY COUNCIL

HOSPITAL finance is a most complicated subject, and the more experience one has of its difficulties the more one realises the inadvisability of drawing comparisons between the costs of any one hospital and those of another. Few, if any, hospitals are exactly alike as regards construction, lay-out, type of work done, staffing arrangements, occupation rates, and financial commitments. It is futile to attempt comparison of costs without a full realisation of the varying degree to which all or any of these factors influence them. In the preface to the hospital costing returns issued by the Ministry of Health the following caveat appears: "A number of factors must be taken into consideration before a proper comparison can be made between the average costs of different institutions." I wish to endorse this opinion very strongly and to deprecate attempts to draw invidious comparisons between the costs of maintenance unless full cognisance is taken of these varying factors.

Before discussing the more important of these factors let me stress the fact that, consequent on the passing of the Local Government Act, 1929, and the appropriation of the hospitals previously controlled by boards of guardians, municipalities took over institutions which varied very markedly in construction, equipment, and tradition. Each hospital brought with it a widely differing inheritance of scales of salaries, wages, ration and other allowances, proportion of staff to patients, hours of duty, pensions, &c. The standard of medical work aimed at, and achieved, was very far from constant; the distribution of beds as between acute and chronic and the demand for beds showed wide variations. While it never will be possible to make hospitals, which vary in either type or function, conform to arbitrary standards of cost, it is only a question of time till many of the anomalies are removed. We cannot by a stroke of the pen cancel existing arrangements as to staff wages, pensions, or hours of work; we cannot immediately do a complete and final classification of hospitals for differing types of work nor can we solve the problem of providing sufficient beds for peak demands without having an excess number in periods when the incidence of sickness is low. We cannot dispense with nursing staff when demands are low and hope to replace them as required from labour exchanges or elsewhere.

The chief factors influencing the published cost per patient per week are: (1) percentage occupation; (2) wages of staff; (3) engineering and works services; (4) type of medical or surgical work done; and (5) cost of food, drugs, dressings, &c.

Percentage Occupation

The most important single factor influencing the stated weekly cost of maintaining a patient in hospital is the relation existing between the number of beds provided and the average number occupied.

With the exception of the cost of food, drugs, and dressings, all major cost items are very largely independent of the number of beds occupied, but, as the weekly cost is arrived at by dividing total costs by this number, it is obvious that the final figure depends almost entirely on the size of the divisor. There are so many factors outwith local control which affect this figure that deductions as to the efficiency or otherwise of hospital administration drawn from the stated costs are bound to be fallacious.

It should be borne in mind that hospitals provided by a local authority must admit all cases who apply for admission and who come within the approved categories. We are unable to select our cases as can the voluntary hospitals. It is essential, therefore, that we maintain a sufficient margin of beds to deal with, not only the normal, but with the seasonal or peak demands. This seasonal variation is a marked and well-recognised phenomenon in hospital work; it is particularly noticeable in poor areas, such as the East End of London, where, in winter, large numbers of sufferers from complaints such as bronchitis, catarrhal and rheumatic states must come into hospital owing to there being no reasonable facilities for their treatment at home.

On account of this variation in the demand for beds it is impossible to maintain a steady occupation over twelve months of anything approaching 100 per cent. except in those hospitals whose function is such that something in the nature of a waiting-list is possible. Even a busy hospital which is full and frequently overfull in winter may show a drop to 70 per cent. or less in summer with the result that its percentage occupation for the twelve months cannot be greater than 85 per cent. It has to be remembered that, even although a hospital of 700 beds returns 100 vacant beds, these are probably distributed throughout its 25 wards and its special departments and are not all available for admission of any stated type of case. Assuming that the 700 beds are divided into 25 wards of 28 beds each, the 100 vacant beds would be got if there were 24 patients instead of 28 in each ward. The probability would be that the general wards were even more fully occupied than this and that there were more empty beds in special departments such as maternity, skin, venereal diseases, mental observation, and children's.

For the year ending March, 1934, the percentage occupation in the L.C.C. general hospitals was 79·6 per cent. of the nominal accommodation. At most of the hospitals extra beds were taken into use in winter, not necessarily because all the accommodation was taken up, but on account of certain wards being unavailable owing to reconstruction or to quarantine.

In arriving at these percentage occupation figures no allowance was made for beds which for any reason were unavailable. It is the custom in most voluntary hospitals to base the percentage occupation rate on the number of available beds and not on the nominal accommodation. Before comparing percentage occupation figures it is essential to know the basis on which they are calculated.

Let me now consider seriatim the causes of variation in percentage occupation.

AVAILABILITY OF BEDS

(*a*) *Reconstruction.*—At most municipal hospitals a regular programme of reconstruction and improvement has been in progress since the appointed day and this has reduced the number of beds available. Naturally at certain hospitals the amount of work has been much greater than at others. At one L.C.C. hospital approximately 120 of the 554 beds have been regularly unavailable since 1931. This has resulted in their maximum attainable occupation

figure being in the neighbourhood of 70 per cent. Apart from the cost of the work itself this low rate has inflated the published cost of all services to each occupied bed.

(*b*) *Decoration.*—On an average approximately one-fifth of a hospital is—or should be—closed for three months per year for cleaning and painting. While this, being general, does not affect comparative occupation rates, it reduces the average annual percentage attainable.

(*c*) *Quarantine.*—The extent to which hospitals are susceptible to outbreaks of infectious disease depends very largely on the number of children's beds and on the provision of reception or observation wards. It is impossible to avoid introduction of infection into children's wards unless all new admissions are kept in separate isolation cubicles for at least 14 days (21 days in the case of chicken-pox which is perhaps the most infectious of all).

(*d*) *Proportion of beds in special units.*—These are not available for normal admissions and it is difficult to run these departments—e.g., for venereal disease, maternity, tuberculosis, mental observation—without having a reasonable margin of available beds. Over-provision has in some cases been made, and it is only by experience that the correct proportion of beds can be allocated. As a rule wards for venereal disease are not fully occupied. Vacant beds in these wards cannot be used for other purposes and it is usually thought advisable to provide for possible "peak" requirements for this disease.

The monthly percentage occupation of the special units in the L.C.C. general hospitals for the year ending March 31st, 1934, was as shown in Table I., the figure for all beds being given for comparison.

TABLE I

Percentage of Occupied Beds and Total Accommodation in Special Units during each Month of the Year 1934

Month.	Accommodation in special units.	Percentage of occupied beds—	
		In special units.	In hospitals as a whole.
January	2014	55	87
February	2014	66	90
March	2014	60	89
April	2091	57	86
May	2064	51	83
June	2064	46	77
July	2058	47	75
August	2056	40	73
September ..	2041	35	73
October	2065	44	75
November ..	2081	53	79
December ..	2081	55	79
Average for the year	2062	50	81

This comparatively low occupation rate of beds in special departments has obviously an adverse effect on that of the hospitals as a whole. Careful consideration is being given to the possibility of reducing the number of beds in these units; some have been closed and in others reallocation has already taken place but, as it is essential to provide a margin in each, it is not possible to attain as high an occupation rate as for general beds.

(*e*) *Reserved wards.*—Wards are sometimes reserved for a certain type of case irrespective of demand. While there is much to be said for allocating patients to wards according to age and type of illness, over-classification reduces the number of beds available for general admissions and is to be discouraged. Classification should be, within reasonable limits, elastic, otherwise one finds a case being refused admission to a hospital in which there are empty beds because it does not fulfil certain arbitrary criteria of eligibility.

SITUATION

The situation of a hospital as regards locality, its accessibility, its proximity to other municipal or voluntary hospitals, its reputation in the district, all have their effect on percentage occupation, and hospitals vary very widely in all these points and the influence of each is so obvious that little comment is necessary. It should be remembered that a hospital which caters almost exclusively for the poor in a poor district is much affected by the variations in seasonal demand already referred to.

LENGTH OF STAY

This is a most important factor and it depends on many causes, most of which are not equally applicable to all hospitals. It is affected by:—

(*a*) Proportion of beds reserved for chronic sick and tuberculosis cases; number of beds normally occupied by maternity, surgical, or medical cases; number of beds allocated for short stay cases—e.g., tonsils and adenoids for operation.

(*b*) Facilities for transferring chronic sick easily and regularly to an appropriate institution.

(*c*) Whether an out-patient department is provided and, if so, whether full use is made of it, of the district medical officers and of district nursing services to complete treatment.

(*d*) Facilities available in the district for home nursing of minor ailments; in poor areas the number of admissions of such cases is greater than in better-class districts and the average length of stay is short.

(*e*) Facilities for transferring suitable cases to convalescent homes or hospitals for completion of treatment.

(*f*) Efficiency of hospital arrangements:—

(1) Number of discharge days and the strictness with which every patient who may be fit for discharge is examined.

(2) Practice of making the day of admission of other than emergency surgical cases fit in with operating days.

(3) Keenness shown to get chronic sick and other suitable cases moved to institutions or convalescent hospitals even when there is no urgent demand for hospital beds.

Many of the foregoing points depend very largely on personal interest; while it is probably too much to say that cases are kept in longer than is strictly necessary with a view to reducing cost per patient per week at the expense of total annual costs to the local authority there can be no doubt that, as long as so much stress is laid on the comparative value of these published figures, there is no inducement to aim at a quick throughput of cases, except in the few hospitals where the demand for beds regularly exceeds the supply. At present little, if any, credit is given to a hospital for the number of cases treated per year. Admittedly hospitals are not strictly comparable as regards this figure: those with many beds for the chronic sick and tuberculous are at a disadvantage; those with large maternity units, tonsils, and adenoid clinics, &c., should treat a greater number of cases per year; but the anomalies are not greater than those obtaining under the present system of comparison.

Staff Wages

Wages account for about 55 per cent. of the cost of the average hospital; the amount depends on several factors:—

(1) The number and type of the resident medical staff and consultants.

(2) The number of staff in proportion to the number of patients.

(3) The proportion of probationers to senior nursing staff.

(4) The rates of pay which obtain.

The number of staff depends on :—

(1) The type of work done—highly specialised, surgical, or medical units require a larger medical and nursing staff than normal wards.

(2) The size of the ward unit, the arrangement of wards and of the hospital generally as regards convenience and ease of working; a hospital with good provision of lifts and transport facilities generally requires a smaller domestic staff.

(3) The standard set by the old authority. Very large domestic and laundry staffs were engaged at some hospitals to give people work instead of relief and, as transferred officers, these employees cannot be dispensed with.

To a very great extent these factors are outside local control; owing to differences in construction, lay-out, and the type of work done complete uniformity cannot be hoped for.

The prevailing rates of pay are still less under local control and the many anomalies cannot be removed while such a large proportion of hospital staffs are transferred officers. Even when all staff is under the terms adopted by local authorities uniformity will not be reached throughout the country. The law of supply and demand, affected by industrial and topographical considerations, will continue to operate. Table II. shows the wide variations in number and cost of staff at certain L.C.C. hospitals —in most cases those with the highest and lowest costs in their respective groups.

TABLE II

Number and Cost of Staff at Certain L.C.C. Hospitals

Hospital group.	Medical and nursing staff per 10 beds.	Cost of medical and nursing staff (pence per patient per week).	Other staff excluding engineers per 10 beds.	Cost of other staff (pence per patient per week).
I. ..	3·1	152	3·7	244
	3·0	176	2·9	241
	3·8	168	3·4	195
	3·1	132	1·7	138
	2·9	130	1·6	132
	3·0	130	2·0	141
II. ..	3·0	148	1·8	134
	3·3	185	3·1	219
	2·3	119	2·3	178
	3·2	157	2·1	136
III. ..	3·1	148	2·3	142
	3·9	194	2·6	208

The costs are in pence per patient per week and are based on a uniform percentage occupation of 80. It is noteworthy that the cost of an approximately equal medical and nursing staff at one hospital is nearly 4*s.* per patient per week more than at another. The numbers of "other staff" and costs show similar anomalies. The difference would be much greater if correction had not been made for variations in percentage occupation.

In the preface to the Ministry of Health's costing returns for hospitals the following statement appears in paragraph 8 :—

"The wide diversity in the circumstances of many of the institutions for each of the different purposes with which Part I. of the Costing Returns is concerned makes it inadvisable to calculate the average weekly cost in detail under different heads of expenditure, for each group of institutions."

It is obvious that unless the proportion of staff to patients can be, and rates of pay are, made constant, it is impossible to expect any reasonable approximation of weekly costs to a uniform standard.

Engineering and Works Services

Approximately 18 per cent. of the cost per patient per week in L.C.C. hospitals is expended on these services. The figures for various hospitals differ widely. Consider, for example, the figures at certain hospitals for the twelve months ending March, 1934, given in Table III.

TABLE III

—	Hospital.	Cost of heating and lighting.	Cost of special works and maintenance.
		Pence per patient per week.	
1	A.	72·4	45
2	B.	40·2	15
3	C.	85·5	99
4	D.	90·0	116

Heating and lighting costs depend on the lay-out of the hospital, the efficiency of the system, the cost of coal, and the rates at which gas and electric power can be obtained. The "works" figure depends on the amount of reconstruction or improvement that has been undertaken and on the local conditions which influenced the price at which it can be carried out. Number of staff and rates of pay have also a bearing on these figures.

Type of Work Done

Assuming that the other factors influencing cost operate to the same degree in a number of hospitals, cost per patient per week depends largely on the type of case treated. Consultant services, more and better qualified medical and nursing staff, expensive diagnostic and treatment equipment are essential where work of a high medical or surgical standard is undertaken. It is the impossibility of assessing accurately the scope and quality of the work done at any other hospital which makes comparison difficult. Even the number of operations performed per annum is an unreliable figure as, at many, all routine tonsillectomies done for the school medical department are included. Special units, such as those for plastic or thoracic surgery, cancer, venereal diseases, thyroid diseases, and diabetes, may add considerably to average costs.

Cost of Food, Drugs, Dressings, &c.

(*a*) *Food.*—The proportion of the weekly maintenance expended on patients' food, drugs, and dressings is smaller than is usually thought. On food it is usually under 10 per cent. The amounts spent in the various L.C.C. hospitals still show divergencies, but there are now evidences of a general levelling up.

(*b*) *Drugs, dressings, medical and surgical appliances.* The average cost of drugs and dressings and medical equipment is about 4·5 per cent. of total costs. The amount depends very largely on the type of work done, although wise buying and careful specification followed by unremitting control of issue and use have a marked effect in reducing it.

In comparing costs under this heading it should be borne in mind that the large authority, catering for a number of hospitals, is in a position to buy much more cheaply than is the authority to which only a few institutions belong. The L.C.C. is peculiarly fortunate in this respect, its hospital service being so large and comprehensive that it can obtain food, drugs, dressings, and equipment of the

very best quality at rates much below those normally obtaining.

Conclusion

In view of the influence which so many factors, which are either permanently or temporarily outside local control, have on the cost of maintaining a patient in hospital it is impossible to expect uniformity. It is futile to base a comparative estimate of the efficiency of various hospitals on published costs without allowing for the many varying standards and conditions.

I have to thank Sir Frederick Menzies, medical officer of health to the L.C.C., for permission to publish this article which is based on various reports submitted by him to the hospitals and medical services committee of the L.C.C.

MENTAL CARE IN 1935

BOARD OF CONTROL REPORT

THE twenty-second annual report of the Board of Control, for the year 1935, shows that overcrowding in public mental hospitals is getting worse and has in a few hospitals rendered emergency measures necessary. The number of in-patients has increased by 1711 and the total number of beds by 1390; there are now 2261 more beds than are authorised, and the actual overcrowding is more serious even than this figure suggests. The continued increase in the number of patients does not reflect a real increase in mental disorder, but corresponds to the rising birth-rate of a generation ago. One new mental hospital is nearly finished; Essex and Lancashire are to have a hospital each, but not for several years. While the pressure may be less next year, accommodation will remain strained in some areas. The most interesting event of the year was the opening of Holme Lacy, near Hereford, for private patients. This is a historic country mansion in beautiful surroundings. Two admission hospitals with convalescent homes were opened, at Wadsley and Glamorgan, and the Board are glad to note that the provision of these essential units continues steadily, for no mental hospital without a detached admission unit and treatment centre can be regarded as complete.

MENTAL TREATMENT ACT

The Board report a steady development in the administration of the Mental Treatment Act. The number of voluntary admissions has increased by 43 per cent., from 4078 to 5834. The number of temporary patients admitted was 1258 as against 697 in the previous year, an increase of over 80 per cent. The Board point out that this result alone within five years of the passing of the Act more than justifies its provisions. Nearly a quarter of the admissions to public mental hospitals are now voluntary. As the public come to realise the vital importance of early treatment the proportion of voluntary rate-aided admissions may become as large as that of the voluntary private admissions, and it is reasonable to expect that in time at least half the total admissions will be voluntary. The present regrettable prejudice against treatment in public mental hospitals cannot, the Board consider, survive if half the patients enter voluntarily, 15 per cent. temporarily, and only a third are certified. The ratio of voluntary admissions to total direct admissions varies widely over the country, but the Board do not think that temporary admissions would exceed 15 per cent. even if administrative difficulties were less. They are, however, satisfied that Section 5 of the Act is complicated and difficult and may deter those who would like to use the procedure. There is still a discrepancy between the chances of a rate-aided and a private patient being admitted under this section.

The Act permits out-patient, voluntary, and temporary treatment to be given in general hospitals, and it was hoped that the great voluntary hospitals would take this opportunity of providing for the treatment of early mental disorder. It turns out that few voluntary hospitals have done so, and some municipalities are beginning to make provision for early mental treatment in their own general hospitals. The number of rate-aided cases dealt with by urgency order has been disappointingly small; relieving officers have been slow to realise that there is no hard and fast rule requiring the removal of a patient to a public assistance institution before certification.

The important changes in the machinery and administration of the Board which the Act introduced have led to a more expeditious dispatch of business and to smoother coöperation between the Board and the local authorities. The object of these changes was to make the organisation and procedure of the Board like those of large Government departments, but the process is not yet complete. The section governing visiting committees is a complicated provision; it is now on the whole working satisfactorily, but the Board might welcome some simplification. The mental treatment rules have worked with a minimum of difficulty.

The term "mental hospital" has now been generally substituted for "asylum" and "person of unsound mind" for "lunatic." The Board have, however, received more than one proposal that the word "mental" should be left out. Proposals like this, coming within five years of the passing of the Act, suggest, they say, that the search for euphemisms is not without its dangers. The Board cannot accept the view that the word "mental" has in itself any stigma and feel that to call a mental hospital merely a hospital could only result in confusion by failing to indicate its essential purpose.

The number of out-patient centres continues to increase, but some areas are still not served and in some centres the intervals between sessions are far too long. Early mental patients are shy creatures and will not readily give their confidence to a doctor who is only prepared to see them once a month. The Board realise that these centres make a heavy demand on the medical staff of the hospitals but point out that the remedy is to increase the staff. They hope that visiting committees will bear in mind the crucial importance of out-patient work when they are considering requests for additional medical staff. Out-patient centres save many patients from the need for in-patient treatment and cost little to maintain. Financially they are the best investment a visiting committee can make. If full use is to be made of them the medical staff must be assisted by trained social workers, who can make a more complete picture of the patient's home conditions than the doctor can by his questions or correspondence. The demand has until recently exceeded the supply, but more graduates from the London School of Economics' course are now available. One London hospital released its almoner for a year to take the course, and Borstal institutions have given their male officers a year's leave for the same purpose.

In some mental hospitals an early and constructive effort is made to assist treatment by forming a contact with the relatives and friends of new admissions and helping them to understand the nature of the breakdown.

Boarding-out is systematically attempted either through the hospital social worker or by arrangement with the Mental After-Care Association or the local voluntary association for mental welfare. The Board consider this work is better done by the existing organisations.

COÖRDINATION OF VOLUNTARY EFFORT

The Board take the view that institutional care is only part of a health service which includes all aspects of mental hygiene. The special problems of child guidance, the treatment of borderline cases, after-care and preventive care, and mental deficiency are all closely related, and to attempt to deal with them in isolation is neither scientific nor economical. The Board have noted with pleasure the growing movement in favour of combining, either by amalgamation or federation, all the various voluntary agencies interested in different aspects of mental health. They consider that the want of unified direction and of a comprehensive central body able to view the problem as a whole has made the mental hygiene movement relatively ineffective in this country. Without some measure of union, or at least of coöperation, no effective appeal can be made to the public for financial support and—an even graver source of weakness—no real advance can be made in bringing home to the public the needs and possibilities of the work.

LIBRARIES AND DIET

The Board stress the importance of books and papers to the mental patient and recommend to all mental hospitals the report on libraries issued by a committee of the Mental Hospitals Association. They consider that much might be done to make meals more attractive and service better, and regret that no English mental hospital has yet experimented with the cafeteria system which has been so successful in America, by which the patient takes a plate to the service counter and is offered a choice of dishes. In practice the relative popularity of different dishes can be gauged accurately and the wastage is no more than with the present rigid system. The amount left on the plates is considerably less—in fact, the only complaint made in America is that there is not enough swill left to feed the pigs! Incidentally, the cafeteria system relieves the nurses of much of their present work of serving the meal. The Board also repeat their plea for giving women patients an opportunity to wear more attractive clothing.

OBSERVATION WARDS

The Board are perturbed by the results of an inquiry they have made, with the Ministry of Health, into the observation wards in municipal hospitals and public assistance institutions. Some of the larger cities have well-equipped wards with a trained and experienced staff, but in many so-called observation wards new patients are mixed with chronic patients and low-grade mental defectives; there are no facilities for classification and the staff are not specially trained. Other authorities extemporise a small ward, which can hardly be efficient. On the other hand, a big ward is apt to absorb money and attention that ought to be spent on the hospital and offers a temptation to undertake treatment, which ought not to be given there at all. The Board hold that no observation ward ought to be used unless the number of patients is expected to justify keeping at least one trained nurse always on duty on each side. Proper use of the Mental Treatment Act will, they consider, obviate much of the need for such wards.

Mental Deficiency

The number of new beds provided by local authorities during the year is 1088, and the Board are satisfied with the year's work. They find it remarkable that so many local authorities have provided at least the first section of a colony. There are now comparatively few local authorities in England without beds of their own. In Wales the position is less satisfactory and, except for progress at one institution, there is no improvement to record. Many more daily training centres are still required for mental defectives living at home, but the Board warn authorities that centres can never take the place of the colony, and to send a child from a bad or inefficient home to a centre because there is no room for him in an institution is fair neither to the centre nor to the child. There is also need for evening clubs for young adult defectives, and several excellent clubs are working in large centres. Their chief need is a sufficient number of voluntary workers, for defectives cannot organise their own amusements. Scout and Guide organisations do valuable work. The Board hope that authorities will adopt a more liberal and uniform practice in granting licence and make every effort to return to the community those defectives who have become sufficiently stabilised to live a normal life and contribute to their support. As a preliminary to licence, hostels are valuable, particularly for the higher-grade girls. The Board deprecate the recall of patients who have shown themselves able to hold their own in industry, merely because they have married. They report favourably on the experiment at Sheffield by which visiting consultants have been employed to remedy physical conditions. Treatment has often led to a marked improvement in behaviour, by removing irritating physical conditions, especially from the ears, nose, throat, and eyes.

The Board point out the great variation in the ratio of mental defectives notified by local education authorities: from 3 per 10,000 at Plymouth to 0·3 or less in twenty-five other areas. The expectation that the local education authorities would do most of the ascertaining under the Mental Deficiency Acts is far from being realised. The Board include in the Appendix a memorandum drawn up by the Board of Education which shows some of the difficulties of ascertainment and notification and suggests how they may be mitigated.

Dealing with community care, the Board note that voluntary supervision is increasing rapidly while a number of local authorities make little use of statutory supervision. They recommend statutory supervision as preferable because it allows the local authority to vary the treatment at any time and thus deal with the patient before he comes on the danger list. Many stabilised defectives who have no relatives or friends might be licensed to employers or foster-parents, but only under three conditions: a progressive scheme of training in the institution, a periodic review of all patients to decide which are fit for licence, and a proper organisation to find guardians and provide supervision outside. They believe there is further scope for boarding out with foster-parents medium-grade defectives of good habits. They show by an example how training in an institution, combined

with a wise system of re-socialisation and care in the community, may fit girls for a decent and useful life after discharge.

The Board also remark that a considerably larger number of mental defectives have been dealt with for crime, but that crime has not substantially increased among juvenile defectives. Public assistance institutions are less often used for housing criminal defectives, and have only been used when the local authority has no colony of its own and cannot find a contract institution willing to receive its defectives.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE STERILISATION OF THE DRINKING WATER OF PARIS

RECENTLY the Hôtel de Ville was the scene of a presentation of the Grand Medal of Paris by the president of the municipal council to Colonel Bunau-Varilla, to whom the city owes the present purity of her drinking water. It was in 1930 that the municipality decided to adopt his system of chlorine sterilisation of the water drawn from the Seine, the Marne, and the Ourcq, and in 1932 the sterilisation plant was installed at Ivry. Since then there has been a remarkable drop in the incidence of typhoid fever in the city. On the occasion of this presentation, Colonel Bunau-Varilla quoted the following figures. In 1925 the mortality in France was 17·4 per 1000 inhabitants, whereas the corresponding figure for Germany and England was between 11 and 12. In 1935 the French mortality had fallen to between 15 and 16 per 1000—a fall traceable in large part to chlorine disinfection of drinking water. He went on to calculate that if the State introduced legislation providing for the chlorine sterilisation of drinking water, it would be possible to reduce the country's mortality by three more units per 1000 inhabitants, bringing it down to between 12 and 13. In this way 120,000 lives might be saved every year, and the country would have an excess of births over deaths running into 100,000 instead of its birth-death deficit of 20,000.

WELFARE OF JUVENILE PROSTITUTES

According to Mlle. Serin, médecin en chef des Asiles, the ranks of the precocious prostitute under the age of 18 are growing, at any rate in the large towns. Some 500 of them pass through the prison of Fresnes every year, and this number does not include the many girls sent home by the police with a warning, or those who are transferred to some institution or other without being drafted through a prison. It was hoped that the new laws of October, 1935, dealing with the care of children in trouble and abolishing the relatively Draconian law of 1921, would prove as salutary as they were designed to be merciful, but it has been found that the machinery available for dealing with these delinquents was not there to give effect to the new legislation; an institution designed by the new law to house a certain class of juvenile offender simply did not exist. Between February and July of this year Mlle. Serin has undertaken an exhaustive analysis of 88 juvenile offenders between the ages of 15 and 18, and her examination has shown that in as many as 44 cases these children presented grave faults of character. Nearly all of them had been the victims of precocious debauch before they were launched on their careers as prostitutes; 10 of them were so mentally backward that they were completely incapable of regular remunerative work. Even when the intelligence was normal, the mentality was often inelastic and even dangerous. An inquiry into the antecedents of these children showed that alcoholism in the parents existed in 46 cases, mental disease in 20, and congenital syphilis in 15. Only in 2 cases was it found advisable to recommend admission to an institution for supervised education. There were 40 girls who were referred back to their families, and the rest were dealt with in various other ways, 2 being admitted to an asylum and 2 others to a psychiatric clinic for observation. Truly the juvenile prostitute is heavily handicapped from the outset.

COMPULSORY RETIREMENT OF DOCTORS AT 65

The prospect of the enactment in the near future of a law withdrawing the licence to practise medicine from all doctors on attaining the age of 65 has generated quite a lively correspondence in the Parisian medical press. In the *Presse Médicale* for Sept. 5th a correspondent recalls the experiences of Dupuytren on a visit to London where he was fêted in the grand manner by his English colleagues. One of his hosts was Astley Cooper, living at the time in retirement at his country seat. Here he entertained Dupuytren, whose raptures over the magnificent trees in his host's park evoked from the latter: "Yes, they are certainly fine. Every morning I examine them to decide which I shall choose to hang myself from. In London I should have been dead of fatigue; here I shall die of boredom." Whereupon Dupuytren urged his host to return to London. Cooper did so, and remained in harness till his death many years later. Impressed by this experience, Dupuytren used often to say that he would stick to his guns to the last, and that when he could no longer walk to his patients, he would be carried to them.

MEDICAL EXAMINATION OF MEDICAL STUDENTS

Last year the Paris faculty of medicine undertook the organisation of a systematic medical comb-out of first-year medical students. The results have been such that this practice will be repeated this autumn. Every medical student registering as such will receive an invitation voluntarily to undergo a medical examination at a certain time and place. The examinations are conducted by members of the staffs of Parisian hospitals, and special attention is paid to the respiratory system with a view to the early detection of tuberculosis. Every precaution is taken strictly to preserve professional secrecy, and it is only when the student consents that the findings of an examination are communicated to his parents or family doctor.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

ABERDEEN ROYAL INFIRMARY

THE Aberdeen Joint Hospital scheme, which culminated in the opening of the new Royal Infirmary in Aberdeen on Sept. 23rd by the Duke of York, must be the envy of many other hospital centres. It is due to the foresight of Prof. Matthew Hay and the coöperation of the town council, the University Court, and the directors and managers of the Infirmary, the Royal Hospital for Sick Children, and the Maternity Hospital, that this new scheme was

made possible. It will result in concentration of the hospital work of the district in a way that is probably unique in this country. The scheme of having hospitals and teaching institutions in one area led to the acquisition of a site of 100 acres at Forresterhill, near the Royal Mental Hospital. On this site the Sick Children's Hospital was opened in 1928; the new Royal Infirmary is now completed; the Maternity Hospital will soon be ready for occupation; and the foundations of the University buildings are being laid. Through the efforts of Sir Andrew Lewis, when Lord Provost of the city, £410,000 was raised in the course of two years for the Joint Hospital scheme of which £350,000 was available for the new Royal Infirmary. An appeal for an additional £100,000 to complete the sum still needed for buildings and equipment has been launched by Lord Provost E. W. Watt.

THE SCOTTISH EDUCATION DEPARTMENT

The Secretary of State for Scotland has appointed Dr. John Jardine, to be assistant secretary to the Scottish Education Department. Dr. Jardine, who is a graduate of Edinburgh University, graduated in 1904 and after spending some time in general practice was appointed school medical officer for the counties of Midlothian and Peebles. He served with the Army during the duration of the war, being awarded the O.B.E. (military) and being also mentioned in dispatches. In 1924 he was appointed medical officer and inspector of physical training to the Scottish Education Department, and since 1931 he has held the post of junior assistant to the Department.

NEW APPOINTMENTS AT THE EDINBURGH ROYAL INFIRMARY

Dr. R. M. Murray-Lyon and Dr. W. Lindsay Lamb have been appointed honorary assistant physicians to the Royal Infirmary in succession to Prof. Edwin Matthew, who is retiring, and Dr. D. Melville Dunlop, who was recently appointed to the chair of therapeutics in the university. Dr. Murray-Lyon is at present assistant pathologist at the Royal Infirmary, and Dr. Lamb is clinical tutor at the Aberdeen Royal Infirmary.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

SYLVATIC PLAGUE

THE growing interest in rodent plague in this country dates from early in 1934 when a plague epizoötic was recognised among ground squirrels on ranches lying north and east of Bakersfield, California. Public health authorities on the west coast were thus apprised that the control methods that they had believed to be both thorough and effective had in fact failed. Without leaving any detectable trace of its wanderings plague had crossed from the coast countries to the foothills of the Sierra Nevadas. Employees of the U.S. Forestry Service or Biological Service now recognised plague in Modoc county in the north-east corner of California. In May, 1934, a shepherder of Lakeview, Oregon, became ill with a temperature of 105° F., pulse 110, leucocytosis of 14,000, and a tender swelling in the right groin the size of an egg. On the second day a "dusky livid line" developed over his body, and on the third day he died. The diagnosis of plague was confirmed bacteriologically. In June, 1934, a 10-year-old schoolboy visited a California ranch in which plague-infected squirrels had been found. He contracted bubonic plague and though he recovered from the bubo he died on the 118th day from plague meningitis. During 1935 no human cases were reported, but extensive areas of rodent infection were discovered. Plague was proved in 107 Oregon squirrels out of 1492 that were shot, in 4 wood rats, and in 1 white-footed field-mouse. Plague was demonstrated in a ground squirrel as far east as Beaverhead county in the State of Montana.

A Committee on Sylvatic Plague was appointed by the Western branch of the American Public Health Association meeting at Helena, Montana, in July, 1935. Dr. Karl F. Meyer, director of the Hooper Foundation, became its chairman, and has ever since been active in its interest. The title of the committee has drawn fire from some health officers who maintain that plague is plague and nothing gained by calling it "sylvatic." Dr. Meyer defends the title which was originated, he says, by R. Jorge in a monograph entitled "Rongeurs et Puces" (Masson, 1928). The French "peste silvatique" became sylvatic plague in a review of the memorial volume of the Manchurian plague prevention service (Jour. Amer. Med. Assoc., 1935, cv., 535). Dr. Meyer defends the terminology as of epidemiological significance. Rat plague, he says, "rises and falls within a century and finally flickers out; wild rodent sylvatic plague is everlasting and permanent."

During the present year a case of bubonic plague has been reported in Sonoma county north of San Francisco Bay. The patient was a veterinarian but the source of his infection has not been established. A new procedure for detecting plague among squirrels was suggested to the committee by Dr. C. R. Eskey of the U.S. Public Health Service. This consists of making an emulsion of pooled fleas which emulsion is injected into guinea-pigs. Using this method Dr. Eskey has proved the presence of plague in fleas collected from *Citellus elegans* in Elko county, Nevada. The Hooper Foundation has had equal success with the method applied to Californian fleas. Courses of instruction for field workers have been organised by the Sylvatic Plague Committee and by the University of California.

ALLERGIC REACTIONS TO SCHICK TEST

Simultaneously with the publication of Parish's article on this subject in THE LANCET,[1] two cases of allergic response were reported from Vanderbilt University.[2] Both cases were in individuals who had been immunised with alum-precipitated toxoid. In neither case was the subject sensitive before the administration of the prophylactic. In both cases the symptoms were controlled by the administration of adrenaline. In the second case urticaria reappeared after some hours but was finally banished by ephedrine sulphate given by mouth.

[1] THE LANCET, August 8th, 1936, p. 310.

[2] Keller, A. E., and Harris, S., Jr.: Immediate Allergic Response following a Schick Test, Amer. Jour. Pub. Health, 1936, xxvi., 809.

SUNDERLAND AND DURHAM COUNTY EYE INFIRMARY.—Sir John Priestman has offered £50,000 for the rebuilding of this hospital. Sir John has previously given a similar sum to the Monkwearmouth Hospital of which he is president.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A DEPARTMENTAL DOCTOR

I

In his last novel, the "Faithful Lovers," Mr. J. D. Beresford relates a conversation between a boy of seventeen and his nearly fifty-year-old father. They are walking in Kensington Gardens upon an early autumn day, and the boy remarks that, in his opinion, it is absolutely the best time of the year. His father disagrees and votes for the Spring. He has become old enough to realise, he says, the sadness in the decay of the year and also its warning. Looked at more objectively, however, there is a good deal to be said for autumn, and particularly for October, even by the middle-aged and elderly. If Spring is the season of hope and youth in what we call Nature—instinctively separating ourselves, as most of us do, from the rest of Nature when we thus speak of it—October, and especially in university cities, is surely youth's particular month in the human calendar. By a blesséd dispensation of the educational authorities, it is the month chosen for the new entry at school, university, and hospital, endowing us older ones with a second and delightful edition of Spring.

* * *

There are of course many other things to be said in favour of October. It is as good a month as any for a country holiday and better than some. It has scents and sights, the aroma of cobwebbed hedges in early morning, the faint smell at dusk of farmyard bonfires, that are all its own. But, for those of us who are city-bound, its supreme gift is this returning tide of youth, once more irrigating the streets and the class-rooms and the theatres and wards of the hospitals.

It is perhaps not easy to realise what this renewal means in towns whose universities are as ancient as themselves, or in those dedicated solely to commerce or to the amenities of the retired. What they have always known they appreciate less fully. What they have never known they do not, perhaps, miss. But in such a town, for example, as Reading, never lovely and for long completely utilitarian, the coming of a university must be too apparent to escape anybody's notice. Decoratively and psychologically, the blazers and bobbed heads have invaded it for nothing but its good and unexpected grace.

Also the push-bicycles, still perhaps, more than anything else, the sign-manual (or pedal) of youth; and this suggests the question, which English town contains the most push-bicycles to the acre? If anybody could answer, it ought to be the doctor trying to save time between his visits. Oxford and Cambridge must be well in the running. But one would like to hear the opinion of the doctors in Bedford.

* * *

Everybody, no doubt, tends to romanticise the other person's job, but there must be many doctors who will envy the teaching staffs of the medical schools and hospitals in these first days of October. If they are not the veriest hacks, they cannot fail, in their intimate collision with all these new young minds, to receive some personal benediction denied to the rest of us. They will no doubt have to run a critical gauntlet, resulting in verdicts discreetly hidden from them; and many of these verdicts will of course be much too sweeping, whether in praise or blame. But they will once more have the supreme chance, as they listen to some ill-informed but dazzlingly cogent question, of reviewing the problems of medicine with the innocence of eye that alone makes the greatest discoveries.

There will also be renewed in the wards of most hospitals, in these first days of October, the meeting of two streams of youth itself—the stream that has passed through the hospital college or engaged in its medical studies directly after leaving school, and the stream that has come down from what are called the ancient universities. The latter will probably be observed by the former with a certain element of distrust. Is the culture of New College or King's to be flaunted a trifle too obviously before their eyes? And New College and King's will at first, perhaps, be inclined to regard those others from a rather too careful distance. But it will all be a part, and not the least part, of the medical education of both, their ultimate absorption into what is probably the most democratic and least class-conscious of all the learned professions.

* * *

But what has all this got to do with most of us, who are not attached to any medical school or hospital? Not a great deal, perhaps, except to remind ourselves that the hospitals are still there and that youth is in them, and that we ourselves do not revisit them as often as we should do. It may not be easy; and some of us are disinclined, no doubt, to play the part of the revenant. We remember the elderly—and obviously ignorant—gentlemen who used occasionally to appear in our own days. We trusted we should never be like them. They scarcely seemed to have learned even the alphabet of their supposed job. And now we hesitate to take the risk. All those boys will know, for example—at any rate in theory—the pathology of a dozen sorts of brain tumours that never apparently existed in our time; and they will divine, however careful we are, the depths of our inadequacy. And yet, and yet—well, there was the naïve old gentleman who provoked our own ribald laughter by admitting that he had never heard of an opsonic index, and what exactly *was* a sheep-rabbit? And where is the opsonic index now? So let us at least have half a heart. Some of these curiously named processes and reactions and syndromes that bewilder us may also, just possibly, go to the grave of having been really something rather different. And if these lads can recite the names of a lot of new weeds in the human garden, we may still perhaps be able to give them a hint or two as to whether the lawn will last for a few more games. It will be the very small gift of which our grey hairs have paid part of the price. It will in any case be considerably less than the largesse we shall receive.

* * *

And if we hesitate, God forgive us, because we disapprove of the rising generation, because we

think they are incapable, lacking in fibre, devoid of application, degenerate in manners, let us remember the example of the late Dr. John Caius. He had been physician to three monarchs, Edward VI., Queen Mary, and the young Queen Elizabeth. He had helped to found a college. He was old in practice. He ought to have known. And the generation that was then beginning to follow him caused him the profoundest misgivings. They had lost the true faith. They were churlish in behaviour. Worst of all, they were soft. "If they be not," he lamented, "all day by the fire with a toast and butter and in their furs, they be straight sick." And after John Caius had been gathered to his fathers, and in the shapes of Raleigh and Drake and Marlowe and Shakespeare, they girdled the globe, defeated the Armada, and created the Midsummer Night's Dream.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Soon after Jan. 1st, 1937, short-service surgeon lieutenants of 1933 seniority, and officers of 1932 seniority permitted to defer their applications, are to report whether or not they wish to be considered for transfer to the permanent list. About March applications for transfer will be considered and the selections made will be promulgated. Should any officer wish to defer decision he should report. Since May 1st, 1934, all entries have been on a short-service basis of three years.

Surg. Lt.-Comdr. E. T. S. Rudd to rank of Surg. Comdr., and to *St. Angelo* for H.M. hospital ship *Maine*.

Surg. Lt. C. D. D. de Labilliere to rank of Surg. Lt.-Comdr.

Surg. Lts. M. H. Adams to *Barham* and C. V. Harries to *Sussex*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt.-Comdr. E. R. G. Passe to *Dolphin*.

Surg. Lt. G. P. McCullagh promoted to Surg. Lt.-Comdr.

Surg. Lt. R. T. Gaunt to *St. Vincent*.

Mr. E. G. Wilkinson, of Edgbaston, has been appointed Admiralty surgeon and agent for Birmingham, and Mr. E. F. Baines, of Whitby, for Whitby.

ROYAL ARMY MEDICAL CORPS

Capt. W. A. D. Drummond to be Maj., Jan. 29th, 1935. (Substituted for notification in the *Gazette* of Feb. 15th, 1935.) (*Vide* THE LANCET, Feb. 23rd, 1935.)

SUPPLEMENTARY RESERVE OF OFFICERS.

Capt. W. F. de C. Veale resigns his commn.

ARMY DENTAL CORPS

Applications are invited for dental surgeons for appointment to 12 commissions in the Army Dental Corps. Candidates will be selected for these commissions without competitive examination and must be not over the age of 28. Successful candidates will be given short-service commissions for six years, at the end of which period they may either retire with a gratuity of £1000 or apply for permanent commissions. Full particulars and form of application may be obtained from the Director, Army Dental Service, War Office, London, S.W.1.

J. A. M. Gemmell, S. G. Gourley, J. E. Maywhort, and C. H. James to be Lts. (on prob.).

TERRITORIAL ARMY

Maj. and Bt. Lt.-Col. K. Pretty to be Lt.-Col.

Capt. D. S. Middleton to be Maj.

Supernumerary for service with O.T.C.: Capt. J. F. Fraser (Empld. Aberdeen Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Maj.

A. R. Bowtell (late Cadet, Malvern Coll. Contgt., Jun. Div., O.T.C.) to be Lt.

P. T. Cooper (late Offr. Cadet, Marlborough Coll. Contgt., Jun. Div., O.T.C.) to be Lt.

ROYAL AIR FORCE

Squadron Leader F. B. O. L. B. Crawford, to Headquarters, Bomber Command, Uxbridge, for duty as Medical Officer.

Flight Lts. promoted to rank of Squadron Leader: R. Thorpe and P. B. L. Potter.

Flying Offrs. promoted to rank of Flight Lt.: S. R. C. Nelson, R. S. Peill, H. E. Bellringer, T. J. M. Gregg, C. M. Carlyle-Gall, R. L. Soper, R. S. B. McClean, A. S. Amsden, and A. B. Marshall.

Flight Lt. J. H. Cullinan to R.A.F. Depôt, Uxbridge.

Flight Lt. W. P. Griffin is transferred to the Reserve, Class D.

Flying Offrs. E. B. Harvey, to R.A.F. Station, Hendon, and J. H. Preston, to Medical Training Depôt, Halton, on appointment to short-service commission.

Dental Branch.—Flying Offrs. C. H. Beamish, E. Martin, and A. C. Wilkie, to Medical Training Depôt, Halton, on appointment to non-permanent commissions.

Flying Offr. D. P. Boyle is promoted to the rank of Flight Lt.

RESERVE OF AIR FORCE OFFICERS

T. A. G. Hudson is granted a commission as Flight Lt. in Class D.

Flight Lt. D. B. Smith relinquishes his commission on completion of service.

Special Reserve.—Flight Lt. J. L. H. Easton resigns his commission.

INDIAN MEDICAL SERVICE

Capt. G. C. Phipps to be Maj.

Capt. Y. N. Lal relinquishes his temp. commn.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) A. Bayley-de Castro, M.B.E., retires.

The King has given permission to Dr. Gleb Von Anrep, F.R.S., professor of physiology at the Egyptian University of Cairo, to wear the insignia of Commander of the Order of the Nile conferred upon him by the late King of Egypt.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED SEPTEMBER 19TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1743; diphtheria, 1034; enteric fever, 106; pneumonia (primary or influenzal), 409; puerperal fever, 31; puerperal pyrexia, 100; cerebro-spinal fever, 13; acute poliomyelitis, 29; acute polio-encephalitis, 2; encephalitis lethargica, 5; continued fever, 1 (Battersea); dysentery, 23; ophthalmia neonatorum, 81. No case of cholera, plague, or typhus fever was notified during the week.

Of the 106 notifications of enteric fever the county of London provided 16 (in 11 boroughs, 5 in Lambeth), Middlesex 10 (scattered over 6 urban districts), Southampton 20 (Bournemouth 15), Dorset 7 (Poole 6, Weymouth 1), Surrey 9 (Sutton and Cheam 5).

The number of cases in the Infectious Hospitals of the London County Council on Sept. 25th was 2755, which included: Scarlet fever, 938; diphtheria, 757; measles, 94; whooping-cough, 392; puerperal fever, 17 mothers (plus 11 babies); encephalitis lethargica, 285; poliomyelitis, 2. At St. Margaret's Hospital there were 18 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox or scarlet fever, 13 (1) from enteric fever, 4 (1) from measles, 11 (2) from whooping-cough, 34 (3) from diphtheria, 61 (15) from diarrhœa and enteritis under two years, and 19 (3) from influenza. The figures in parentheses are those for London itself.

The deaths from enteric fever outside London occurred at Bournemouth 6, Poole 2, Enfield, Harrow, Derby, and Cardiff each 1. Deaths from diphtheria were reported from 18 great towns, Hull 6, Manchester 5, Liverpool 3, no other great town more than 2.

The number of stillbirths notified during the week was 227 (corresponding to a rate of 35 per 1000 total births), including 38 in London.

THE MEDICAL REGISTER

UNTRACEABLE PRACTITIONERS, 1936

WE have been requested by the authorities of the General Medical Council to publish the following list of registered medical practitioners who had not, when the list was sent to press, replied to letters written to them on behalf of the Council under Section 14 of the Medical Act, 1858, in order to ascertain whether their addresses on the Medical Register are still correct. The date given after each name is the date of original registration; the qualification given is the principal qualification registered by the practitioner. The letters (E), (S), or (I) indicate whether the practitioner was originally registered in England, Scotland, or Ireland; and the expressions (Col) or (For) indicate that the practitioner is registered in the Colonial List or in the Foreign List in the Register. Any practitioner, wherever resident, who finds his or her name in the list should write without delay to the Registrar, General Medical Council, 44, Hallam-street, Portland-place, London, W.1, unless he or she was originally registered in Scotland. Practitioners originally registered in Scotland should write directly to the Registrar of the Branch Council for Scotland, 44, Queen-street, Edinburgh, 2. The name of every practitioner in the list from whom a further communication is not received at a very early date will be omitted from the next issue of the Register in accordance with the provisions of Section 14 of the Act of 1858.

Abdel-Al, Ahmed, M.R.C.S., 1914(E).
Abdul, Haq, M.B., 1930(Col).
Adair, Thomas McC., L.R.C.P. & S., 1895(S).
Adam, Basil John, M.B., 1886(S).
Advani, Dowlatram G., L.R.C.P. & S., 1905(E).
Alam, Shaikh S., M.R.C.S., 1932(E).
Alexander, John N., M.R.C.S., 1924(E).
Ali (Miss), Gulzar M., M.B., 1927(Col).
Allan, Robert F., F.R.C.S., 1925(Col).
Allan, William B., M.B., 1926(E).
Allan, William S., M.B., 1905(S).
Allen, Sydney H., L.R.C.P. & S., 1901(S).
Allison, Herbert C., M.D., 1920(Col).
Allport, Evett G., M.R.C.S., 1902(E).
Almond, Walter W., M.C.P. & S., 1923(Col).
Altman, Asher L., L.S.A., 1881(E).
Anderson, Helen, M.B., 1925(I).
Ansari, Mukhtar A., M.B., 1908(E).
Ansari, Obaidullah M. T., M.B., 1933(Col).
Anson, George F. V., M.R.C.S., 1916(E).
Arnold, Thomas, M.B., 1908(I).
Arseneau, Edmond A., L.M.S., 1926(Col).
Asaad, Mohamed, L.M.S.S.A., 1930(E).
Ashe, Patrick, L.R.C.P. & S., 1913(I).
Ashley, Thomas E., M.R.C.S., 1911(E).
Aspinall, Robert S., F.R.C.S., 1916(E).
Atcherley, John, M.R.C.S., 1892(E).
Atkinson, John L., M.R.C.S., 1909(E).
Austin, Grace L., M.R.C.S., 1927(E).

Baliga, Anappa V., M.R.C.S., 1931(E).
Barron, Richard D., M.R.C.S., 1906(E).
Barry, James, L.R.C.P. & S., 1895(S).
Barry-McKenna (Mrs.), Catherine M. (formerly Barry), M.B., 1924(I).
Basu, Amiya K., M.R.C.S., 1931(E).
Bates, Henry L., M.R.C.S., 1880(E).
Batho, Marion L., L.A.H., 1911(I).
Baxter, Robert H., M.B., 1923(Col).
Baylis, Vera R. T., L.M.S.S.A., 1932(E).
Beale, Alfred G., F.R.C.S., 1885(E).
Beard, Emile A. C., M.B., 1913(S).
Beaugié, Donald McN., L.R.C.P. & S., 1932(S).
Beith, Bruce McN., M.B., 1919(Col).
Bell, Harry C. R., M.B., 1932(Col).
Bell-Smyly (Mrs.), Eileen M. (formerly Bell), M.B., 1917(I).
Bennet, Constance A., M.B., 1902(S).
Bhurke, Gajanan M., L.M.S., 1930(Col).
Biggs, Lesley N. H., M.D., 1901(E).
Binnie, John F., M.B., 1886(S).
Birkinshaw (Mrs.), Eileen E., L.M.S.S.A., 1911(E).
Black, Ernest, L.R.C.P., 1885(S).
Blythman, Arthur E., L.S.A., 1907(E).
Bohrsmann, Gustav T. H., M.B., 1931(Col).
Boland, Charles V., M.D., 1915(E).
Bolger, Patrick T., F.R.C.S., 1887(I).
Bonney, Henry C., M.B., 1925(S).
Booth, Sydney, L.R.C.P. & S., 1894(S).
Borgaonkar, Venktesh G., M.B., 1930(E).
Bottrell, Stanley H. R. (formerly Van Ryck de Groot, S. H. R.), L.R.C.S., 1892(E).
Bour, Edouard F., M.R.C.S., 1888(E).
Bowie, John T., M.B., 1911(S).
Boxill, Duncan de Courcy, M.R.C.S., 1931(E).
Brabazon, Edward, M.R.C.S., 1905(I).
Brabyn, George W., L.R.C.P. & S., 1893(E).
Bray, Frederick H., M.B., 1915(E).
Bray, Simon R., M.B., 1933(Col).
Brennan, Edward, M.B., 1923(I).
Brew, George A., M.B., 1931(Col).
Brewis, Andrew S., M.B., 1887(E).
Brooke, Gilbert E., L.R.C.P. & S., 1897(E).
Brooks, Ivan E., M.B., 1931(S).
Brown, Norah W., M.B., 1927(I).
Browne, Harrie S. D., M.B., 1902(E).
Bruce, Hugh G., M.B., 1912(S).
Bruser, Harry H., M.D., 1920(Col).
Buckingham, Reginald E., M.B., 1927(Col).
Budd, Arthur, *M.C.*, M.B., 1904(E).
Burgess, Edward A., M.R.C.S., 1872(E).
Burns, Thomas, L.R.C.P. & S., 1888(S).
Butterfield, George R., M.B., 1933(Col).
Byrne, Henry, L.R.C.S., 1887(I).

Cagney, Patrick, M.B., 1913(I).
Caldwell, George F. A., M.B., 1929(S).
Cameron, Harold D., F.R.C.S., 1925(Col).
Cameron, Hugh F., M.D., 1933(Col).
Campbell, Arthur D., L.R.C.P., 1879(E).
Caraher, Francis A., L.R.C.P. & S., 1926(I).
Carleton, Gladys C., M.B., 1918(S).
Carney, Michael J., L.M.S., 1912(Col).
Carraher, Jane, M.B., 1925(I).
Cassar, Albert, M.D., 1907(Col).
Catzel, Jack, M.B., 1933(Col).
Cavanagh, Charles, L.R.C.P. & S., 1895(I).
Chan, Sze Pong, M.B., 1907(E).
Chandrasekharan, Trichinopoly, L.M.S.S.A., 1932(E).
Chapman, Robert S., M.B., 1921(I).
Chapnick, Abraham M., M.R.C.S., 1934(E).
Chaubal, Raghunath R., L.R.C.P. & S., 1907(S).
Checchi, Cyril, M.B., 1915(Col).
Chiplonkar, Trimbak L., L.M.S., 1913(Col).
Christal, Charles H., L.R.C.P. & S., 1908(I).
Church, John E., M.R.C.S., 1925(E).
Church, Robert A. H., M.B., 1922(Col).
Clancy, Gordon S., M.D., 1919(Col).
Clarke, Allan W., L.R.C.P. & S., 1887(S).
Clarke, Thomas H. M., *C.M.G.*, *C.B.E.*, *D.S.O.*, M.B., 1895(I).
Cline, Eric C., M.R.C.S., 1915(E).
Cohen, Benjamin, M.B., 1919(Col).
Coleman, Philip, M.B., 1925(I).
Coll, Charles J., M.B., 1922(I).
Coll, Daniel G., M.B., 1932(E).
Collins, Annie, M.B., 1930(E).
Collins, Edward J., M.B., 1923(I).
Colombowala, Munchersha R., L.R.C.P. & S., 1903(S).
Colquhoun, Keith G., M.B., 1915(Col).
Conlin, Arthur J., M.B., 1926(I).
Connolly, Edward W., M.R.C.S., 1914(E).
Connolly, Joseph R. de W., F.R.C.S., 1923(Col).
Connolly, Peter J., M.B., 1922(I).
Connor, James M., L.M.S.S.A., 1929(E).
Cook, Edmund A., L.R.C.P. & S., 1881(S).
Cook, Edward, M.D., 1904(For).
Cooke, William A., M.R.C.S., 1912(E).
Copeland, William H. L., M.D., 1889(E).
Cormack, Thomas R. S., M.R.C.S., 1932(E).
Coulton, John J., M.R.C.S., 1887(E).
Courtney, William, M.S., 1883(I).
Covernton, John S., M.B., 1933(Col).
Coyle, Joseph, M.B., 1927(I).
Crawford, Charles S., M.D., 1932(Col).
Crichton, John P., L.R.C.P. & S., 1920(S).
Cross, David G. T. K., B.M., 1921(E).
Cross, Philip R., L.M.S.S.A., 1913(E).
Crowley, Daniel F., M.B., 1922(I).
Crowley, Vivian G., L.M.S.S.A., 1926(E).
Cruickshank, John D., M.R.C.S., 1888(E).
Cullen, Louisa M., M.B., 1926(I).
Cunningham, Albert M., M.C.P. & S., 1934(Col).
Cuppaidge, John L., M.D., 1880(I).
Currie, William F., M.B., 1919(Col).

Da Costa, George F. A., M.B., 1883(E).
Daly, Joseph P., L.R.C.P., 1887(I).
Daly, Victor M., M.B., 1893(E).
D'Anna, Antonino, M.D., 1929(For).
Das, Sir Kedarnath, *C.I.E.*, M.B. 1921(Col).
Davidson, Henry J. D., L.R.C.P. & S., 1905(E).
Davies, Kenneth J. H., L.M.S.S.A., 1921(E).
Davis, William H., L.S.A., 1880(E).
Davison, John H., M.B., 1917(I).
Davison, Rashell T., M.B., 1874(E).
Davison, Samuel H., M.B., 1912(I).
Deane, Arthur M., M.B., 1904(E).
Dearberg, John L., L.R.C.P. & S., 1926(S).
Degardins, Alfred, L.R.C.P., 1903(E).
Denning, Ben, M.B., 1931(Col).
Denniston, William C., M.B., 1908(E).
de Robillard, Joseph E. E., M.R.C.S., 1916(E).
de Saram, Christophel F. W., L.M.S., 1930(Col).
Desgroseilliers, Georges H., M.D., 1927 (Col).
Desloges, Alfred, M.D., 1923(Col).
Devane, James, M.B., 1921(I).
de Vaugelas-Hone, Sylvester A. F. (formerly Hone), M.C.P. & S., 1918(Col).
Dewar, Alexander, L.S.A., 1902(E).
Dewar, John E., F.R.C.S., 1922(E).
Dey, Nalini Nath, L.R.C.P. & S., 1902(S).
Deyns, Charles J., M.R.C.S., 1886(E).
Dhondy, Ardeshir C., L.R.C.P. & S., 1905(I).
Dixon, William A., L.R.C.P., 1890(E).
Dodhi (Miss), Avabai J., M.B., 1920(Col).
Donovan, Robert L., M.B., 1922(I).
Dorion, Walter A., L.R.C.P. & S., 1904(S).
Draper, Thomas F., M.D., 1920(Col).
Drew, William T., M.R.C.S., 1872(E).
Dryden, Douglas D., L.R.C.P. & S., 1890(S).
Dube, Kali C., L.M.S., 1908(Col).
Duff, William W., M.D., 1890(I).
Duffy, Charles A. G., M.D., 1934(Col).
Dugdale, William, L.R.C.P., 1880(I).
Dugre, Rodrigue, M.D., 1922(Col).
Duke, Francis V., M.B., 1925(I).
Dundee, John I. C., M.B., 1923(I).
Dunn, Spencer S., M.B., 1888(E).
Durrani, Nisar M., M.R.C.S., 1932(E).

Eardley, Francis H., M.B., 1927(I).
Ede, Frances, L.S.A., 1898(E).
Edwards, David R., M.R.C.S., 1899(E).
Eggo (Mrs.), Vivienne M. (formerly Gunson), M.R.C.S., 1927(E).
Eldon, Joseph, M.S., 1889(I).
Elliot, Henry C. S., M.D., 1920(Col).
Elliott, Joseph J., L.R.C.P. & S., 1914(I).
Elliott, Nicholas P., M.R.C.S., 1881(E).
Ellison, Joseph E. (formerly Eliason, J. Elias), M.B., 1923(I).
Eloff, Johan S., M.R.C.S., 1917(E).
English, Michael A., L.R.C.P. & S., 1921(I).

Esler, John, M.B., 1923(Col).
Evans, William, M.R.C.S., 1886(E).
Evers (Mrs.), Ida B., L.R.C.P. & S., 1895(I).

Fenton, Clyde C., M.B., 1929(Col).
Figini, Carlo, M.D., 1910(For).
Finlay, Donald F., M.B., 1915(Col).
Flach, Arthur, M.D., 1902(For).
Fletcher-Barrett, William, M.B., 1917(E).
Formby, John E., M.B., 1932(Col).
Fraser, Charles S. F., M.B., 1925(Col).
Friedman, Jacob, L.M.S., 1930(Col).
Fukushima (Mrs.), Matsuno, M.B., 1924 (For).
Furkert, Frederick P., F.R.C.S., 1932(Col).

Galasso, Attilio, M.D., 1921(For).
Garde, Alfred J., M.B., 1929(I).
Genge, Francis H., M.B., 1923(Col).
Ghosh, Ekendranath, M.D., 1921(Col).
Gillespie, John H., M.C.P. & S., 1920(Col).
Gillies, Gladstone R., M.B., 1927(Col).
Gillies, Henry V., M.B., 1930(Col).
Gokhale, Vaman G., L.R.C.P. & S., 1910(E).
Gomez, Ivy M., M.B., 1930(Col).
Goode, Christina L., M.B., 1901(Col).
Goodman, Philip, M.B., 1925(Col).
Gori, Rosario, M.D., 1932(For).
Gower, George W., M.B., 1915(Col).
Graham, Kenneth J. M., L.M.S.S.A., 1928(E).
Grant, Roderick W., M.D., 1924(Col).
Graydon, William L., M.B., 1919(Col).
Greene, Samuel S., M.D., 1921(Col).
Gubb, Alfred S., M.R.C.S., 1884(E).
Gugino, Vincenzo, M.D., 1933(For).
Guilmette, Robert W. H., M.D., 1918(Col).
Guinane, James V., M.B., 1933(Col).
Gulati, Mohan L., M.B., 1930(Col).
Gupta, Amarnath, M.B., 1922(Col).

Hackett, Walter L., M.B., 1922(Col).
Ham, Hendry J. P., M.B., 1929(Col).
Hanna, Lloyd M., M.D., 1920(Col).
Harper, James W., M.D., 1918(Col).
Harwood, Horace B., M.B., 1923(Col).
Hassan, Syed, F.R.F.P.S., 1913(Col).
Hattiangadi, Shivshankar K., L.M.S., 1925(Col).
Henderson, Randolph C., M.D., 1920(Col).
Herzig, Maximilian L., M.D., 1925(For).
Hobson, Arthur F., M.B., 1933(Col).
Hodgson, Thomas H., M.C.P. & S., 1932(Col).
House, Walter K., M.D., 1932(Col).
Hughes, John V., M.B., 1919(Col).
Hugo, Dirk de Vos, M.B., 1884(S).

James, Herman H., L.R.C.P. & S., 1924(S).
James, Thomas Glyn, M.R.C.S., 1917(E).
Jamieson, William G., M.B., 1919(Col).
Johnston, Leonard W., M.B., 1926(Col).
Johnston, Llewellyn H., M.C.P. & S., 1918(Col).
Johnston, William G., L.M.S., 1934(Col).
Jones, David W., M.R.C.S., 1914(E).

Kajuria, Des R., M.B., 1930(Col).
Kane, Archibald C., M.D., 1922(Col).
Kaul, Sarveshwar N., M.B., 1926(Col).
Kesteloot, Michel, M.D., 1915(For).
Khan, Abdur R., M.B., 1934(Col).
Kirk, George R., M.B., 1934(Col).
Kirkup, Norman N., M.B., 1926(Col).
Kirti, Kanti C., L.M.S., 1921(Col).
Kirwan, Patrick M., M.D., 1920(Col).
Klausen (Mrs.), Fanny C., M.B., 1933(Col).
Kotak, Narayan B., L.M.S., 1930(Col).

La Flèche, Joseph G. McK., M.D., 1921 (Col).
Lahiri, Priya N., M.B., 1926(Col).
Lakhwarah, Mela R., M.B., 1931(Col).
Lalonde, J. Leo, M.D., 1922(Col).
Leitch, William J., L.R.C.P. & S., 1889(S).
Leone, Pietro, M.D., 1931(For).
Liat, Lee E., L.M.S., 1919(Col).
Lim, Cheng G., L.M.S., 1932(Col).
Linehan, Bridget, M.B., 1921(I).
Lloyd, Richard E., M.B., 1900(E).
Lloyd, Wray D. M., L.M.S., 1928(Col).
Logan, Herbert L., L.M.S., 1925(Col).
Lozina, Constantine, M.D., 1924(For).
Luke, Eric H. M., M.B., 1922(Col).
Lynn, Robert W., M.R.C.P. & S., 1929(Col).

MacAvelia, Millard T., M.D., 1920(Col).
McAvoy, James R., M.D., 1922(Col).
McCumisky, Philip B., M.B., 1931(Col).
MacEuan-Robinson, Matthew E. (formerly Robinson), F.R.C.S., 1915(Col).
McGregor, James S., L.M.S., 1934(Col).
McKay, William J., M.B., 1891(Col).
MacKenzie, Ross G., L.M.S., 1934(Col).
MacLatchy, Robert F., M.D., 1927(Col).
Macpherson, Cluny, *C.M.G.*, L.M.S., 1921(Col).
McQuilkin, Joseph P., M.B., 1930(Col).
McShane, Cletus, M.B., 1915(Col).
Magwood, William J., M.D., 1922(Col).
Maitland, Duncan G., M.B., 1931(Col).
Malcolmson, Alexander S., M.B., 1923 (Col).
Mancino, Andrea, M.D., 1930(For).
Mason, James E., M.C.P. & S., 1925(Col).
Masters, Francis H., M.B., 1902(Col).
Mayer, Ernest, M.R.C.S., 1909(E).
Mehta, Daulat R., M.B., 1921(Col).
Micallef, Joseph, M.D., 1916(Col).
Middleton, John J., M.B., 1919(Col).
Mitchell, David M., M.B., 1930(Col).
Mitra, Manmatha N., L.M.S., 1912(Col).
Mohd Aslam, M.B., 1931(Col).
Moir, D'Arcy H., M.B., 1929(Col).
Monteith, John R., M.D., 1929(Col).
Moon, Harold R., M.B., 1921(Col).
Moore, Brian F., M.B., 1927(Col).
Moore, George H., M.B., 1928(Col).
Morgan, Alfred E., M.B., 1919(Col).
Morrissey, Martin R., L.R.C.P. & S., 1898(S).
Mudali, Arcot K., L.M.S., 1899(Col).
Mukhopadhyay, Siddheswar, M.B., 1934 (Col).
Mulcahy, Daniel, M.B., 1924(I).
Munsif, Krishnalal G., M.B., 1930(Col).
Murphy, Robert J., M.B., 1930(Col).
Murray, Joseph M., M.C.P. & S., 1921(Col).
Murray, William A., M.D., 1917(Col).

Nabar, Gangadhar V., L.M.S., 1926(Col).
Natali, Claudio, M.D., 1933(For).
Navalkar, Shivshankar V., L.M.S., 1919 (Col).
Newell, John A., M.B., 1904(Col).
Newman, Francis A., M.B., 1909(Col).
Nove-Josserand, Marie J. A., L.C.P. & S., 1924(Col).

Old, George G., M.B., 1915(Col).
Onhauser, Claire M. R., M.C.P. & S., 1927(Col).
O'Riordan, John P., L.R.C.P., 1884(I).

Pardy, William V. V., M.D., 1920(Col).
Park, Lindsay M., F.R.C.S., 1926(Col).
Parke, George K., M.D., 1923(Col).
Parma Nand, L.M.S., 1920(Col).
Pattabhiramayya, Papatla, M.B., 1929 (Col).
Patwardhan, Narayan G., M.B., 1930(Col).
Pearlman, Isaac, M.D., 1920(Col).
Perumal, Nicholas C. R. M., L.M.S., 1932 (Col).
Petherbridge, Walter C., M.B., 1924(Col).
Pichaimuttu, Annie, F.R.C.S., 1922(Col).
Pirrone, Antonino, M.D., 1931(For).
Plunkett, Thomas R., M.B., 1934(Col).
Podnos, Arthur, M.B., 1921(Col).
Power, Paul, M.B., 1929(E).
Price, Eric E., F.R.C.S., 1931(Col).
Price, Revecca, M.B., 1922(Col).

Rabadina, Kaikobad B., L.M.S., 1914 (Col).
Raman Pillai, Koyikal P., M.B., 1921(Col).
Rama Pai, Tharuviparambil R.-P., M.B., 1931(Col).
Ray, Sris C., M.B., 1929(Col).
Reddick, Joseph W., M.B., 1919(Col).
Reed (Mrs.), Lilian R. G. (formerly Grady), M.B., 1924(Col).
Reilly, Wellington H., M.C.P. & S., 1919 (Col).
Ricciulli, Temistocle, M.D., 1930(For).
Ritchie, John B., M.D., 1920(Col).
Rountree, Jean Grace, M.B., 1931(Col).
Rush, James W., M.B., 1920(Col).

Saha, Kalidas, M.B., 1930(Col).
St. Amand, George, M.C.P. & S., 1917 (Col).
Sakai, Michio, M.B., 1924(For).
Sandes, Stephen G., M.B., 1932(Col).
Sandhu, Rajindar S., M.B., 1929(Col).
Santoro, Soccorso, M.D., 1930(For).
Sargent, William V., M.D., 1919(Col).
Sarup, Narain, M.B., 1929(Col).
Scantlebury, Vera, M.B., 1918(Col).
Scott, George O., M.C.P. & S., 1919(Col).
Segatore, Nicola, M.D., 1925(For).
Sen, Protap C., L.M.S., 1921(Col).
Sen, Satindrakumar, M.B., 1920(Col).
Seth, Pran N., M.B., 1921(Col).
Shanta, Christopher A., M.B., 1921(Col).
Shuter, Richard E., M.D., 1911(Col).
Small, Hugh A., M.B., 1933(Col).
Small, Ronald H., M.B., 1931(Col).
Smeaton, Bronte Creagh, M.B., 1931 (Col).
Smith, Aloysius D., M.B., 1932(Col).
Smith, Dorothy B., M.B., 1932(Col).
Sogu, Meherwan A., M.S., 1922(Col).
Solomon, Norman J., M.B., 1933(Col).
Sommerville, Andrew N., M.D., 1919 (Col).
Somogyi, Stephen, M.D., 1933(For).
Soon, Lee Kek, L.M.S., 1919(Col).
Sowerby, William, M.B., 1914(Col).
Stening, George G. L., M.B., 1931(Col).
Stephen, Clive T., M.B., 1915(Col).
Stewart, Charles B., M.D., 1932(Col).
Stewart, Robert B., M.C.P. & S., 1921 (Col).
Stokes, Harry L., M.B., 1924(Col).
Stone, James G. R., M.C.P. & S., 1919 (Col).
Sud, Ram N., M.B., 1921(Col).
Sutton, Mordaunt G., F.R.C.S., 1919 (Col).

Taliat, Jacob, F.R.C.S., 1930(Col).
Teney, Heber F., M.B., 1927(Col).
Thomas, Maurice E., M.B., 1923(Col).
Trood, Charles J., M.B., 1891(Col).
Turaga, Lakshmi N., M.B., 1932(Col).

Ullah, Mohammad S., M.B., 1922(Col).

Vandaele, George, M.D., 1915(For).
Van Zyl, Francois D. du T., M.B., 1931 (Col).
Vishwa Nath, M.B., 1929(Col).

Waddell, Thomas J., M.D., 1920(Col).
Waite, James, M.D., 1920(Col).
Wald, Orlando E., M.C.P. & S., 1923(Col).
Walmsley, Sarah M. F., M.B., 1931(Col).
Wang, Chung C., M.D., 1914(S).
Ward, Francis G., M.B., 1925(Col).
Ward, Hugh K., M.B., 1912(Col).
Warren, Joseph R., L.M.S., 1919(Col).
Webb, Fred E., M.B., 1920(Col).
Whig, Pearey L., M.B., 1927(Col).
Williams, Charles S., M.B., 1932(Col).
Willson, Herbert G., M.D., 1926(Col).
Wilmot, Le Baron B., L.M.S., 1920(Col).
Wilson, Roland F., M.B., 1933(Col).
Wilson, Stanley L., F.R.C.S., 1932(Col).
Witherow, Pauline C., M.B., 1930(Col).
Wood, Charles, M.B., 1917(S).
Wood, James, M.D., 1896(E).
Wulffaert, Franz, M.D., 1915(For).

Zagni, Luigi, M.D., 1934(For).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—During October courses will be given in medicine and surgery at the Metropolitan Hospital (Oct. 5th to 10th); in gynæcology at the Chelsea Hospital for Women (Oct. 19th to 31st); and in neurology at the West End Hospital for Nervous Diseases (Oct. 9th to 24th).

From Nov. 2nd to 14th there will be an all-day course in urology at St. Peter's Hospital, and in medicine, surgery, and gynæcology at the Royal Waterloo Hospital. Week-end courses will be given on heart and lung diseases at the Royal Chest Hospital (Oct. 10th and 11th); on general surgery at the Royal Cancer Hospital (Oct. 17th and 18th); and on obstetrics at the City of London Maternity Hospital (Oct. 24th and 25th). At the National Temperance Hospital an evening course of clinical cases and pathological specimens will be held on Tuesday and Thursday evenings, Nov. 24th to Dec. 10th, at 8 P.M., and a course of lectures on endocrinology on Monday, Nov. 23rd, and on Wednesdays and Fridays from Nov. 25th to Dec. 16th, at 8.30 P.M. Detailed syllabuses of all courses can be obtained from the secretary of the fellowship, 1, Wimpole-street, London, W.

OPENING OF THE MEDICAL SCHOOLS

WE print below extracts from the addresses delivered at the opening of the autumn session at three of the London medical schools. Lord Horder spoke at the Westminster Hospital on Sept. 28th, Sir Crisp English at St. George's Hospital on Oct. 1st, and Miss Elizabeth Haldane at the Royal Free Hospital also on Oct. 1st.

THE DOCTOR AS HUMANIST

BY LORD HORDER, K.C.V.O., F.R.C.P.

DOCTOR and patient. Only after years of experience of that unique relation—after blunders immeasurable, after chances that have been lost for ever by a single word said or unsaid, after failures that were so nearly being successes but for a method that was neglected or an assumption that was premature, after humiliations and disappointments and misunderstandings—only then do we begin to appreciate all that this relation can mean in human life and affairs. How crude we are at first, and how clumsy even at the last! The body of the patient is sensitive enough in most cases, and must always be assumed to be more sensitive than appears, but the *mind!*—"the filmy gossamer" itself is not more delicate, nor needs a gentler approach, than are some of the minds with which we have to deal. If I say that in the doctor's work there must be shown "a power of utilising a wider range than other men can utilise, of faculties in some degree innate in all," I am quoting F. H. Myers' definition of genius, which seems egregious. And yet I cannot better express the mechanism by which the best doctoring is done. The whole of the doctor's experience of humanity must be focused upon his single patient. He must, as it were, *withdraw* into the patient, taking this whole world of experience with him, and with that same infinitely delicate flexibility of soul to which I have referred.

It is thoughts like these that lead me to emphasise the necessity for Medicine to preserve its humanist function. The doctor has always had this reputation. "He that sinneth against his Maker, let him fall into the hands of the physician." Almost this seems to suggest that the doctor is an asylum, a place of refuge, against the anger of the Almighty Himself, though no doubt the more obvious meaning is that when Nature's laws have been transgressed the doctor is the person to guide the wanderer back to the straight path. (The trouble with so many patients is that they want the doctor to *carry* them back.) But the idea of a sanctuary is in accordance with the best traditions of Medicine, and it is in this sense that I am speaking.

The patient is to be protected not only against death and against pain, he is to be protected against the quack who would batten on his infirmities, against his friends, and, too often, against himself. Once his bona fides is established and he has entered the consulting room of the doctor's own personality—not merely the consulting room of the doctor's house, which, after all, may be no more than it is generally called by our American friends, his "office"—once this has happened the patient, like the person of the King, is sacred. He has a divine right to the utmost that the doctor can give him—his training, his skill, his experience, his wisdom, his time, his physical and mental comfort. The Chechs have a motto: "The guest in the house is God in the house." With a due regard for the solemnity of the thought, I do not shrink from the analogy, for it exactly fits my thesis. The patient's only credentials consist in the frank avowal: "Doctor, I am a sick man; please help me." This formula once honestly spoken, and there must be no thought in the doctor's mind of who the patient is, or what he is.

It is sometimes the patient himself, not the doctor, who fails to realise the tremendous simplicity of this contract. I was once consulted by a well-known bone-setter—his trouble was an intractable rheumatism—and when the examination was over the patient said, regretfully, "I wish I had come to see you before." "Why didn't you?" I asked. "I thought you would have a bias against me," said the anatomy-adjuster. "My dear man," I exclaimed, "if Beelzebub himself came here and said, 'Doctor, I'm ill, cure me,' I should do my utmost for him." And so, I feel sure, would any one of us. I can picture the scene. Enter the Devil, rather nervous. There is something unusual about the situation . . . bother this inferiority feeling . . . tries to cover it with a shake of the hand that is a shade too hearty . . . walks round a little but is motioned to what, after all, can only *be* the patient's chair. ("Blast the fellow!" thinks the patient, "I believe he knew I was pretending not to know which it was!" "Patience, patience," thinks the doctor, "even the Devil, properly handled, comes to heel when he's sick.") Although, of course, the doctor has long ago seen the horns and tail and cloven feet, his controlled gaze does not suggest that he has, and when, later, the patient lies on the couch, these deformities are adroitly covered lest their possessor be unduly embarrassed. This is all rather simple technique. Should the patient now show signs of regarding the doctor's apparent indifference to his anatomical peculiarities as meaning that they do not come into the case, they are one by one uncovered and, gently but, firmly, these deviations from the average human configuration are pointed out, and their bearing upon the symptoms explained.

I referred just now[1] to Ian Hay's true instinct that Medicine could not be mechanised, and I said that he probably little knew what efforts to do so had been made in recent years. You know to what I refer: the exploitation of instruments of precision, the elaboration of bacteriological and biochemical methods, the commercialising of pharmacology, the rapid sequence of new machinery in physiotherapy.

There is good in all these things, but if we are not careful we shall let them overlay, and replace, the most essential factor in the diagnosis and treatment of disease—personal contact of doctor and patient. The patient won't save himself from this happening. He has seen most of the rest of his life mechanised—why not Medicine? His faith in a piece of apparatus in the doctor's room is pathetic. And standardisation thrills him nearly as much as mechanisation. He knows what his blood pressure "ought" to be—"one in front of my age, isn't it,

[1] In the early part of Lord Horder's address he alluded to the remarks made by those chosen in the last few years to speak at the opening of the session at Westminster Hospital Medical School.

doctor?" (I have never discovered, even yet, who told the public this fairy story.) As if there isn't trouble enough, we now have the instrument makers dictating standards, as though our patients may not even express their individuality in their blood pressures if they want to. Last week I borrowed a colleague's manometer and found that a certain sector had its numbers printed in red, the others being in black. And the face of the dial bore the time-honoured name of Recklinghausen! It reminded me of the white line painted at the 30-mile per hour mark on the speedometer of some motor-cars.

The doctrinaire attitude towards diet adopted by certain pundits makes a great appeal to many patients, who seem to think that any day now Medicine may discover a standard diet, if indeed it has not already done so. I might easily multiply these vain hopes and stretchings out after the "right" or standard rules of life and of health. It is the doctor's job to counter all this and to reveal the patient to himself. His whole duty is to examine carefully, explain clearly, instruct hopefully, and watch diligently.

As mankind develops—I was going to say progresses, but that is perhaps too rash a word; it were safer to say that as the pattern of life changes, the individual looms larger, and not smaller, as the dominant element in the doctor's work. For, as I have pointed out elsewhere, the trouble is no longer that he is cramped by authority, but that he is fatigued, or even runs himself to destruction, by his freedom. Men and women are beginning to take control of life, just as they have taken control of the earth, the sea, and the air. But control of life comes slowly, and in the meantime they hurt themselves. They realise that the causes of their unhappiness lie in the biological sphere, as do the causes of their physical ills, and so they seek help from the physician rather than from the priest. Bewildered by the prospect which their new-found liberty has opened up to them, and as yet unaccustomed to deal with the raw material of their natures as now revealed, they come to the doctor for guidance. Every one of these problems is an individual problem and must be handled as such. To these people the doctor is the realist. He is the link between the fine abstraction which still beckons and the particular application which their present distress demands. He is in a unique position: he has, or he can have, if he will, all the evidence before him. And since, to the doctor, the individual is not a metaphysical constant, as he is prone to be to the priest, but a physical variable, this outlook enables him again and again to lift up the weary head and to comfort the sorrowing heart. First the explanation, then the guidance, and hope, that best of tonics, is reborn.

Clearly the doctor must needs be priest as well as physician. He, too, must be shriven. For the patient may have placed his trouble in a lower category than that to which it rightly belongs. It may be the loss of his aspirations and his ideals from which he is suffering, not a mere failure to adjust his physiological, or even his psychological, balance. Anyway, if the doctor was of necessity a humanist in former generations, it behoves him, for reasons I have tried to make clear, to be all the more a humanist to-day. And "humanist" is an understatement half the time: every good doctor, if I say the whole truth, feels impelled to answer the recording angel's question, as did the Rabbi of old: "write me as one that loves his fellow men."

LOOKING FORWARD

By Sir Crisp English, K.C.M.G., F.R.C.S.

If you cast your minds forward, you will of course realise that you will be working under very different conditions from those of to-day. In twenty years or so, say in 1956, many of the ways of life and medical practice will have changed greatly. Let us attempt to forecast some examples of these changes.

Speed and mechanisation will have continued their onward career; in fact, much of the change will have been brought about by the demands of increasing speed. Aeroplanes will be then nearly as common as motor-cars are to-day, and the principle of the autogyro, the vertical rise from the ground, will be effective, so that the scope of the aeroplane will be greatly increased. It will be common practice for you to visit patients by aeroplane, and for patients to be transported by the same means from place to place. Aerial ambulances are already in active use, and in the future the larger hospitals in cities and towns will have flat roofs for their reception, and of course, lifts running up on to those roofs. The roads will be altered for increase of speed, and you in your motors will cruise along them at 100 miles per hour; pedestrians and cyclists will be isolated and will no longer have opportunities of being killed by cars. You will have noticed that cars have increased by 78 per cent. in the last four years; if this increase continues, I must leave it to your imagination as to how, in twenty years' time, you who will practise in large towns will get about.

Telephones with television will be in regular practical use; the doctor will see on the television screen the tongues and tonsils of his patients; he will see the rash-covered baby held up by its mother for diagnosis; he will also see his guineas, but will be unable to reach them.

Machinery will have brought you many other improvements, time-saving and labour-saving devices. Air-conditioning and sound-proofing of hospitals and many other buildings will be more or less universal, for clean air and regular temperature in hospitals will hasten recovery and diminish complications; and in other public buildings it will do away with that foul over-heated atmosphere which is far too common nowadays. There will be automatic machines for dispensing medicines in the out-patients departments; simple apparatus for taking X rays, more like our cameras or wireless sets of to-day; dictaphones for reproducing and typing the dictated letters without the intervention of a secretary. Food, amongst other articles, will be ordered from the shops by telephone and television; kitchens as we know them nowadays will to a large extent disappear, for most food will come to the home prepared, or at least partly prepared. Bottled and other preserved food supplied by good firms is, as you know, already almost as good as fresh food. In the more densely populated areas community kitchens will serve large groups of houses. Noise, that active producer of nervous strain, will be greatly diminished and unnecessary noise will be a punishable offence; this will be greatly due to the efforts now being made by Lord Horder.

Preventive medicine in the days to come will be a real part of your work. We have all heard the statement that the Chinaman only pays his doctor as long as he is well: how far this statement is correct I do not know, but it contains a most remarkable principle. Except in connexion with health

insurance services, a doctor is paid only when his patients have been ill, from which emerges the unpleasant fact that the more illness there is, the better for the doctors; yet, when you come to think of it, the primary duty of our profession should be to *prevent* illness and accident and to keep the population as well as possible. This point of view has not received the practical attention it demands, but in future prevention will certainly come to be recognised as our first duty. This can only be carried into effect by the wide extension of public medical services. Amongst the better-to-do patients it is probable that the practice will re-start of paying a doctor so much a year to keep the individual and his family well, and illness itself will bring him no extra pay. In brief, our job in life should be to keep people well. Actually, at the present time, we only flourish on their illnesses and accidents. Preventive medicine will surely continue to develop, especially as regards children and in the industrial world. As regards industry there are at the present time between 30 and 40 million working hours lost each year to industry, and it is quite certain that industry will save much as they create greater and more expert supervision of the health of the workers.

In your days you will devote a considerably larger proportion of your time to prevention than we do. Nearly all the population will be insured against the expenses of accident and disease, just as houses now are insured against fire and burglary. How far the voluntary hospitals will have survived as such is doubtful. The scientific side of medicine and surgery will have progressed immensely. Much that we practise to-day will be abandoned and more scientific and also simpler methods of investigation and treatment will take its place.

One great improvement which will have taken place concerns the relations between hospitals and practitioners; one must not forget that general practitioners form more than three-quarters of the profession. At present the glaring defect in our organisation is that hospitals as a whole are of very limited use to practitioners, particularly to those in country districts. The day will come when the profession is divided up geographically, both in towns and country, around the larger hospitals so that practitioners will regard their local hospital as their natural medical centre. Here they will have opportunities of learning and discussing the latest treatments, of seeing the hospital practice, of using a well-stocked library, and also of having a luncheon room, for much may be learnt and arranged during and after a good lunch. Such a scheme will cut out that soul-destroying isolation which is far too common nowadays, especially in country districts.

These are just a few of the many changes which inevitably will come and will make material differences in your lives and your work twenty years hence.

PAST MEMORIES AND FUTURE HOPES

By Elizabeth Haldane, C.H., LL.D.

In the 'sixties and 'seventies of last century women grew dissatisfied with what they began to think were their limitations. And a strange thing is one which I should not have mentioned had I not been specially asked to do so, and that is that the dissatisfaction even reached to a lively nursery of four boys and a girl then living in an old-fashioned Adams square in Edinburgh. And so without any outside encouragement from teachers, parents, or others around her the small nine-year-old girl took up the cudgels for her sex. I mention this, not because the child was different from other children, but because to me it is an interesting fact that the wind bloweth where it listeth, and that, although everyone around may be hostile (as was so in this case), when a great grievance is once recognised as such, the atmosphere seems to penetrate even where it is least expected. Here things came to a crisis when women declared their right to study as men studied for the same great professions, and the little girl whose voice could not be heard above the louder voices of the schoolroom (for, though later on one of the boys was going to do valiant work for the cause of women, the tutor studying to be a medical missionary meantime dominated the situation) decided to write her views in a paper entitled Fair Play, or a Few Words for the Lady Doctors, and then insisted on her arguments being read and considered. The paper, as may be imagined, is amusing enough, but its arguments are sound. They were quite simple—"You say women are incompetent and frivolous: They ask for the chance to do real work in the world and to show whether they can do it or not—Why then not give them that chance?" ... It was the movement in the early 'seventies that so moved me as a child, and I can remember the indignation with which silently I heard our family doctor speak of the women's efforts. I often think if a child felt as I did, what must their efforts have cost women to whom publicity was physical suffering—women many of whom estranged themselves from their families in the day when families reigned supreme, and when breaking with tradition was a crime? ...

I should like to say something of what I personally consider as the ideal of a doctor. I have known those who came very near to it. My ideal is that of a woman or a man who is both skilled in her or his work, observant and patient, but also—and this is the important point—one having an understanding of, and sympathy with, human nature. Now it may be said that this comes or does not come naturally. And no doubt there are some people specially so endowed by nature. But it is also capable of being taught. What I mean is that while learning is being inculcated, do let us remember Bacon's saying in his Essay on Studies, "To spend too much time in studies is sloth ... to make judgment wholly by their rule is the humour of a scholar. They perfect nature and are perfected by experience." Well, I think that Bacon means by that, that learning is not everything; we must also gain by experience what life alone can teach us. And that is not far removed from common sense and the sense of common humanity that the unlearned may have as well as the learned. I have known a doctor look at his patient as a "case," just as employers sometimes look at their employees as "hands." In this they both fail to diagnose what is wrong when things go wrong, and wonder why it is so. They both consider that they have obeyed the rules of the game: they have seen to the conditions prescribed in the one case, they have been just and honourable to their employees; while in the other case they have told the patient what he ought to do, how he should take certain medicaments and observe certain rules of health, perhaps partake of or refrain from certain foods or drinks. Why is there a strike in the one case and dissatisfaction in both? Because neither has really understood that they were dealing with something living and human, something more than a mere machine, and have just failed to understand what is meant by doing this.

Then I have known other employers who seemed to live in perfect friendship with their people, those who in dangerous trades like mining were always there when troubles came, and were ready to risk their lives for those for whom they felt responsible, and who kept in touch with the aged and disabled; just as I have known so many doctors and men of science who set at naught health, comfort, and even life when there was work to be done. Perhaps no profession has so many heroes among its members, so many to whom their work is paramount. I think of how the ordinary general practitioners, for whom I have the greatest respect, took up double work during the war, and spent day and night—bleak, snowy nights often in our northern land—never complaining when they were called up, tired as they were, perhaps unnecessarily. "Honour a physician with the honour due to him." We often echo these words from the Holy Writ when we think of them.

So you see that the good physician is far more than a clever doctor; he or she is one who is prepared to use *himself* or *herself* as well as his or her skill, in dealing with patients, and for this training as well as goodwill is required. For understanding human beings is the hardest task we can put our hand to. I may be old-fashioned but I am inclined to think that the person of goodwill and ordinary common sense who has set himself to the task of understanding his fellows does, after the experience that every doctor has or ought to have, see more than the professional psychologist. I had a friend, an old physician, and I know how he insisted on the individual being studied, not alone, but in connexion with his family and surroundings, and how he emphasised what Sir Farquhar Buzzard emphasised, the necessity for team-work and clinics. And I can see that wise Scot of whom I speak—Sir James Mackenzie—looking at his patient and telling him that a change might do him good, but to remember that Blackpool had advantages for him that others might claim for Cannes, and that the worry of unnecessary expense would so be obviated and the same good result obtained. Above all I like to think of his advice to carry on where carrying on was clearly the right thing to do, and to take an example from himself whose serious affection of the heart never served as an excuse for an idle old age. I have often felt indignant with the specialist who has said to those no longer young: "You must be content to live an invalid life," or "Give up work"—the knell of despair. I am glad to say that advice in one case caused nothing but a revulsion which resulted in the patient living a normal and useful life to the age of a hundred! How difficult it is to lay down the law for things that everyone must learn for himself by experience and observation! But I think I may certainly say this, that women have special gifts in the case of the latter.

KEIGHLEY VICTORIA HOSPITAL.—An entirely new children's block is to be built at this hospital. It will contain one large ward of 32 beds facing south, with full length sun balcony. Mr. Allan Bradley has offered £1000 towards this. The nurses' home is nearing completion.

STROUD GENERAL HOSPITAL.—A block of ten new private wards is to take the place at this hospital of the existing wards which are inadequate and unsatisfactory. An addition has also to be made to the nurses' home, since at present some of the nurses have to share rooms. Altogether an expenditure of £8500 is contemplated.

INTERNATIONAL CANCER CONGRESS IN BRUSSELS

THE second International Congress of the Scientific and Social Campaign against Cancer was held at Brussels from Sept. 20th to 26th, and was attended by over 500 delegates, representing 42 countries, under the presidency of Dr. Lerat, president of the Belgian National League against Cancer. The formal opening of the congress took place on Sept. 20th, at the Palace des Académies, in the presence of the King of the Belgians, when Dr. Lerat, M. Emile Vandervelde, Minister of Public Health, and M. Justin Godart, president of the International Union against Cancer, welcomed the delegates and outlined in general terms the present position of the anti-cancer campaign.

Morning and afternoon sessions were held at the Faculté de Médecine to deal with a full programme of communications representing all aspects of work upon cancer: pathological, clinical, radiological, and social. The meetings in the mornings were sub-divided into the following sections: carcinogenic agents; factors of predisposition and of resistance to carcinogenesis; diagnosis and surgical treatment; radiotherapy and social campaign against cancer. It would be impossible to give any comprehensive account of the numerous short papers presented at these sessions. Unfortunately no printed collection of abstracts of these was issued in advance, and it was therefore not unlikely that any individual delegate might miss some important paper.

In the afternoons reports of greater length were delivered in three concurrent sessions under the general headings of Biology, Diagnosis, and Social Campaign against Cancer. These reports, of which printed copies were available in bound volumes, were frequently the subject of animated discussion and, while no startling new facts of outstanding importance emerged, the concise reviews of recent work were of great value in providing a bird's-eye view of the present position attained in cancer research.

Carcinogenic Agents

In particular attention was drawn to the fine work of E. L. Kennaway and J. W. Cook, who presented an up-to-date review of chemical compounds as carcinogenic agents. Of special interest was the account given of the cholanthrene derivatives which may be obtained by comparatively simple chemical processes from cholic acid and deoxycholic acid. These are the two principal acids of human bile, but so far there is no evidence that methylcholanthrene or any related compound is an ætiological factor in human cancer. However the fact that "the biological testing of cholanthrene and methylcholanthrene has shown that these two hydrocarbons are carcinogenic agents of greater potency than any compounds hitherto investigated," as well as their relationship to substances normally present in the human body, attaches the greatest interest to further work upon these compounds. The high esteem in which this chemical work is generally held was manifested at the congress by the award to Kennaway and Cook of the prize of the Union Minière du Haut Katanga at a reception held on Friday, Sept. 25th.

The part played by viruses in the ætiology of cancer was reviewed by W. E. Gye and others, provoking a discussion which recalled the recent International Congress of Microbiology in London but added nothing

that was not fully debated at that earlier meeting. At another session James Ewing (New York) discussed problems in histological tumour diagnosis in an informative paper. He advocated the wider adoption of tumour registries such as already obtain in the United States. The examination of tumours by aspiration biopsy, using an eighteen gauge needle on a strong suction syringe and staining the resulting plug of tumour cells on a glass slide after fixation, is, in Ewing's opinion, a method that might be more frequently used in the interests of rapid diagnosis and the welfare of the patient. He also pronounced the opinion that specialised tumour pathologists are now required to deal with the vast field of tumour morphology. Such pathologists should work in close contact with the radiologists in order that they may follow the stages in treatment and accurately gauge different grades of malignancy and also degrees of radiosensitivity of tumours.

The carcinogenic potentialities of solar radiations and steps in the chemical mechanism by which such cancers are produced were discussed by A. H. Roffo (Buenos Aires). In particular the part played by cholesterol and its acquisition of radio-active properties were stressed both by this worker and by F. Vlès (Strasbourg) and A. de Coulon (Lausanne), the latter workers pointing out, however, that this hypothesis had not yet been experimentally demonstrated and that other possibilities, more intimately connected with the ultra-violet component of luminous sources, must also be considered in such investigations.

X Ray and Radium Therapy

An important section of the congress was devoted to the discussion of X ray and radium therapy. A review of the progress achieved in X ray work since the Madrid Congress in 1933 was presented by F. Carter Wood (New York). The necessity of scientific precision in applying this type of therapeutic agent should need no emphasis but has not yet been widely enough recognised; the use of drosophila eggs and, in some laboratories, the eggs of other species of fly, as biological indicators represents a step forward in this direction. Carter Wood discussed low and high voltage radiation, and suggested that the construction of more 1,000,000 volt apparatus was unwise until evidence had been obtained that the very great cost involved was warranted. He advocated the Regaud-Coutard technique, and emphasised the importance of adhering strictly to the author's method if this form of therapy is adopted and the avoidance of so-called "modifications" of the technique. He expressed the opinion that this method of treatment when employed with very short wave-lengths will unquestionably enable us to attack types of neoplasms which have not hitherto benefited.

The dangers of indiscriminate and uncontrolled drinking of radio-active mineral waters was pointed out by B. Rajeswky (Frankfurt a.M.), who demonstrated, in two human subjects, the accumulation of considerable quantities of radium in the organs and more particularly in the vertebræ and long bones. The part played by hormones in the production of tumours was discussed at several sessions. A. Lacassagne (Paris), a pioneer in this branch of cancer research, described the comparative effects of œstrone, equiline, and equilenine in producing adenocarcinoma in mice of the Girard strain. He found that similar effects were produced in all groups, but with equiline and equilenine a longer period of time was needed to achieve the same effect as that produced by œstrone. He has also confirmed the observation made by W. Cramer and E. S. Horning in this country of the production of hypophyseal tumours containing an excess of chromophobe cells in mice treated with these substances.

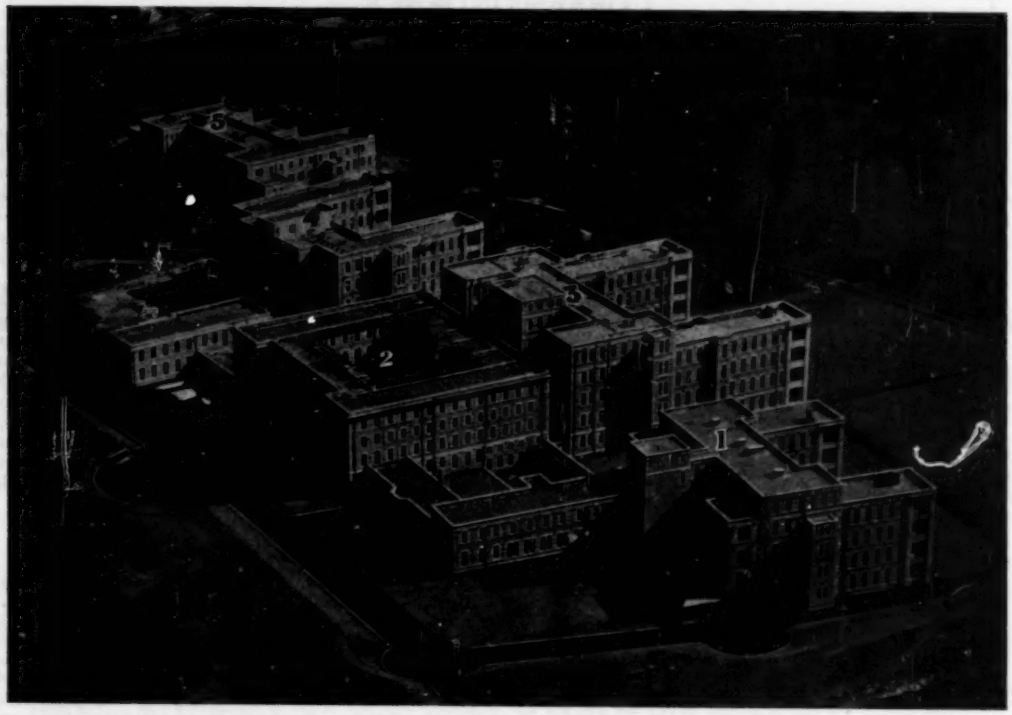
In retrospect two main impressions emerge from the papers read at this important congress. As regards treatment, much hope must be attached to future developments in X ray therapy; with growth in knowledge concerning the application, combined with scientific standardisation of the dosage, this mode of attack appears to carry the greatest promise. In the laboratory the present recognition of a great variety of carcinogenic agents of an extrinsic character seems to mark a definite stage in research, and the feeling is widespread that efforts must now be directed towards the discovery of some more fundamental intrinsic factor or factors which may determine the development of cancer in the presence of one of these known extrinsic agents.

ABERDEEN ROYAL INFIRMARY

ON Sept. 23rd the Duke of York opened the splendid new buildings of the Royal Infirmary, Aberdeen. This venerable hospital dates back two hundred years. The old infirmary buildings, originally built on the outskirts of the city, are now in a congested site in its centre. The buildings have been altered and enlarged at intervals since 1739, but the time came when the directors were confronted with the problem of running a hospital altogether inadequate for the needs of the citizens and for the training of medical students, and incapable of further extension owing to the limitations of the site. Other medical institutions in the city were equally in need of enlargement and up-to-date accommodation, and it was due to the vision of the late Prof. Mathew Hay that the solution was brought about. He conceived the idea of a concentration of hospitals and teaching facilities on some elevated site on the edge of the city where the patients could be treated under the most favourable conditions. In due course a new sick children's hospital was built and opened in 1928 containing 140 beds, constructed entirely on the pavilion system, and equipped on up-to-date lines. This hospital should satisfy the needs of the community for many years to come. Immediately adjacent lies the new maternity hospital which is completed and will soon be occupied. Almost in continuity is the new Royal Infirmary. A hundred yards to the north is the University Institute which is in course of construction and should be finished within a year. It provides complete accommodation for teaching and research for the departments of medicine, surgery, midwifery, pathology, bacteriology, biochemistry, and pharmacology. The medical student of the future will spend the last three years of his medical course in the buildings comprising the joint hospital scheme. Well within a mile to the west of the Royal Infirmary is Woodend Hospital, a municipal institution of 350 beds, which is also used for clinical instruction, while about half a mile to the east lies the Aberdeen Royal Mental Hospital.

The new Royal Infirmary building occupies a central position on the southern slope of the joint hospital site. It has been planned to accommodate 500 patients in three separate ward blocks of four storeys. The main corridor runs east and west. On the north side are administrative offices, kitchens, storerooms, and quarters for certain resident officials.

The ward blocks are situated on the south side of the corridor and consist of a medical block containing 146



1. Medical block. 2. Administrative section. 3. Surgical block. 4. Special departments. 5. Maternity hospital.

The nurses' home is not shown but lies to the right of the medical block, while the sick children's hospital (also not shown) lies to the left of the maternity hospital. The University Institute lies in front of the administrative section. The photograph was supplied by Mr. Gloyer of Aberdeen, by kind permission of the *Aberdeen Press and Journal*.

beds, a surgical block with 252 beds, and a block for special diseases (eye, ear, nose, and throat, and skin diseases) containing 102 beds. In the medical and surgical blocks, the constructional arrangement is such that each unit occupying a floor has a sub-corridor parallel to the main corridor, giving the maximum accommodation for side-rooms and service-rooms, and making the units self-contained. Sanitary accommodation is within the main walls and accessible both from the main ward and the corridors of the side wards.

The medical block houses three medical units, each of 32 beds. The fourth floor is designated "special medical ward" and part of the accommodation has been arranged for a metabolic unit with dietetic kitchens and biochemical laboratory. The fifth floor accommodates 18 beds in small wards, and is intended for the treatment of cases of sickness occurring in the staff of the institutions in the scheme.

The surgical block houses three main surgical units, each of 56 beds each; a gynæcological ward of 34 beds in one main and several small wards; an orthopædic unit of 30 beds similarly arranged; and a genito-urinary unit of 20 beds. Twin operating theatres, joined by a central sterilising and preparation room and flanked by anæsthetic rooms, are attached to each unit. They are situated on the north side of the corridor, access being obtained by a short passage-way.

In the special diseases block the ward units are of 34 beds, with separate theatres for each department. The topmost storey has a self-contained dental unit with accommodation for operative work and rooms for special skin treatments. The ground floor of this block houses the X ray, radium, and physiotherapy departments. Special attention has been given to the equipment of the X ray department, which is considered to be unusually complete and abreast of recent developments in both diagnostic and therapeutic work.

Except in the X ray department, natural ventilation has been secured throughout. The medical block, which was the first section of the building to be undertaken, is heated by hot-water radiators. The remainder of the building is heated by roof panels. Ward floors are of wood blocks; corridors have rubber flooring with terrazzo edgings. The entrance halls are laid with terrazzo and, in certain sections, walls are faced with the same material. Tile work is confined to the theatres, kitchens, and sanitary annexes. Corridors are finished in plaster and flat enamelled. Theatre flats have light blue tiling; wards are in shades of light green and verandahs are painted in warmer sunlight colours. Considerable use has been made of steel tubing and stainless steel in ward and theatre equipment. A considerable amount of accommodation is allocated for teaching and research work. There are three main lecture rooms. Each ward has a well-fitted clinical laboratory for microscopic and chemical investigations.

The nurses' home has been provided in the north-west corner of the site. Lecture rooms, study and demonstration rooms, and public rooms are on the ground floor, while 258 bedrooms occupy the four upper storeys. Fitted wash-hand basins with hot and cold water and built-in furniture have been provided in each bedroom, and a large recreation hall has been provided.

In deference to the strongly expressed wishes of the community, the buildings have been constructed of granite, of which 40,000 tons were required. The mass of granite makes an impressive building and has needed no architectural embellishment.

The new Royal Infirmary cost approximately £525,000. This sum has been raised entirely by voluntary subscriptions. This effort is the more

(*Continued at foot of next page*)

CORRESPONDENCE

ROYAL MEDICAL BENEVOLENT FUND: AN APPEAL

To the Editor of THE LANCET

SIR,—I have hesitated this year in making my usual appeal to your readers for the Christmas gift fund of the Royal Medical Benevolent Fund, because we have had a generous response from many members of the medical profession to our Centenary appeal for new subscribers and for donations. My hesitation was, however, dispelled by the following letter from one of our annuitants, a spinster lady of 75, who has been lame since she was 15. When submitting the last return of her very small income, she wrote:

"The kind Xmas gift of £1 10*s.* must be added to my income. It comes, a regular gift, but I know you might not be able to send it to me. Every Xmas I am just a little expecting and very much hoping to receive it."

This letter made me feel that our annual Christmas gift fund must not suffer. We have between 700 and 800 names on our books and as in previous years we hope to send each a Christmas gift of 30*s.*

I ask for very generous help from all.

I am, Sir, yours faithfully,

THOS. BARLOW,
President.

11, Chandos-street, Cavendish-square, London, W.1, Sept. 28th.

ROCHDALE AND AFTER

To the Editor of THE LANCET

SIR,—The true maternal mortality-rate is the number of deaths of women from pregnancy per 1000 pregnancies. This rate can never be known to us, for we have no certain criterion of pregnancy. What we call the maternal mortality-rate—the number of deaths of women from causes connected with reproduction per 1000 *live births*—gives us the cost in maternal life of producing citizens. If this rate is cast accurately, as it can be done (and can only be done) by accepting the New South Wales convention, "The death of every female between the ages of 15 and 45 shall be attributed to reproduction unless it is proved otherwise," we obtain a product free from error which gives facts of great value to social medicine. Dissection of this rate and inquiry into each death tell us what we want to know—namely, what does kill our mothers, from which we can deduce how to reduce the toll. Attempts to obtain a rate of maternal mortality more acceptable to medicine fail because they always entail factors none of which can be freed from ambiguity.

The success of the Rochdale experiment was not due to any special method employed, for everything that was done in Rochdale has been in operation elsewhere and many places can show a persistently low maternal mortality through the employment of methods quite different from those used at Rochdale. What caused the success was the strength of the determination to coördinate all facilities locally available; it was the fruit of good administration. We are told that 50 per cent. of maternal mortality is avoidable. Actually everything above 2 per 1000, and, theoretically, above 1 per 1000 is avoidable. But this does not mean that half or more of maternal deaths are due to bad practice, negligence, or stupidity; for comparatively few deaths are so caused. The main cause of fatality, that which is preventable, is failure to bring without delay the help that is available to those who need it. Though maternal disease is, of course, the primary cause of all maternal deaths, nearly all maternal diseases are amenable to remedy if treatment is given at the right time. Most of our failures are due to delay and most of the delay is due to faulty administration. Medical administration depends little upon schemes and schedules; its essence is individual field work to bring the benefits of medicine to the people for the people by removing all obstructions to its carriage.

I am, Sir, yours faithfully,

DUNSTAN BREWER.

Public Health Department, Swindon, Sept. 28th.

(*Continued from previous page*)

praiseworthy inasmuch as the population of Aberdeen numbers only 170,000 persons, while the total population of the area served by the hospital is under half a million. It is of interest to recall that the original subscription list for the building of the Royal Infirmary in 1739 amounted to £510 9*s.* 7*d.*; the number of patients admitted in the first year was 21, of whom 2 died, 9 were declared cured, and 10 incurable.

The architect is Mr. James B. Nicol, F.R.I.B.A., in conjunction with Messrs. Pite, Sons, and Fairweather as consulting architects.

THE OXFORD GROUP AND THE MEDICAL PROFESSION

To the Editor of THE LANCET

SIR,—May I make some comment on the admirable letter of Dr. Claxton which appeared in your issue of Sept. 19th, particularly in the light of the comments made upon it in the current one. The unsigned letter in my opinion reflects upon your judgment in permitting Dr. Claxton's letter to be published at all; moreover, the writer's use of the word "sectarian" is entirely inaccurate; further, I would direct his attention to Dr. Claxton's statement that in regard to certain of his patients who have made contact with the group he has noted "a striking difference in their mental and physical health"; also he says that from the same source there grows "a new vision of the purpose of medicine—namely, that the treatment of the whole of man's threefold nature rather than concentration on the physical aspect is the secret of real health." I think every thoughtful person will approve at least the relevance of Dr. Claxton's letter to the practice of medicine.

In this connexion might I direct attention to the valuable analysis made by Lord Horder when speaking at the recent meeting of the British Association on the subject of strain in modern life. He pointed out that one of the serious contributory causes is lack of adequate development on the spiritual side, and clearly indicated that remedy must come in this direction. Dr. Claxton has known it to happen; so have I. Dr. Troup writes in a more sympathetic way, and I would ask him to take Dr. Claxton's advice "to make honest investigation and inquiry" into this movement. If he studies it in this way, and particularly by direct personal contact, he will no longer be able to repeat the essentially untrue statement about "sumptuous hotels."

The medical profession is conservative and rightly so; but with that healthy and protective side goes a curious slowness in accepting new ideas. Dr. Troup congratulates Dr. Claxton on his *courage*. That word recalls to my mind a certain incident. About 1905 I wrote a timid and tentative paper

for our local medical society entitled: A plea for the more systematic employment of Psychotherapy. Being then a junior it was received with a kindly tolerance, but I remember that the outstanding commentary was *congratulation on my courage!* Those who were interested in the psychological side of medicine in those days will know something of the opprobrium which was the lot of any of us who talked much about the subject. Yet how silly such a congratulation would sound to-day!

I should like to add that I have taken considerable pains to make actual contact with the Oxford Group, which is absolutely and entirely non-sectarian, and I am satisfied that it has a true spiritual dynamic and can profoundly modify human lives and conduct in the real spirit of Christian teaching in a way that is little short of miraculous. I wish to support as earnestly as I can Dr. Claxton's plea to the profession to investigate *open-mindedly* the potentiality of the group in the total therapeutic effort which it is the duty of our profession to employ for the benefit of suffering humanity.

I am, Sir, yours faithfully,

Leeds, Sept. 25th. W. H. MAXWELL TELLING.

To the Editor of THE LANCET

SIR,—In few branches of study does nomenclature play a larger part than in the medical sciences and it is, or should be, the constant endeavour of medical men to avoid terminological inexactitude. There have recently appeared in your columns three letters on the subject of Buchmanism which, in each case, your correspondents designate "The Oxford Group Movement." A movement it is, in groups perhaps, but why Oxford? That city has had many things laid at her door—lost causes, and forsaken beliefs, and unpopular names, and impossible loyalties—and now Buchmanism. Beyond the fact that its adherents hold an annual meeting in Oxford, Buchmanism has no connexion whatever with the city or university, and the apparently widespread belief that there is some deeper association has elicited this letter. Fortunately Oxford has learnt to withstand the shocks of time and circumstance with serenity, and the damage, if any, from this minor trauma will not be permanent, but do let us have accurate nomenclature. I am, Sir, yours faithfully,

Oxford, Sept. 27th. ALEXANDER COOKE.

MILK-BORNE SORE-THROAT

To the Editor of THE LANCET

SIR,—In the interesting account by Drs. Camps and Wood in your last issue (p. 756) of an outbreak of epidemic sore-throat of milk-borne origin, no mention is made of a bacteriological examination of the milk of individual cows in the incriminated herd. In my opinion, it was unfortunate if this was not done, because from past experience in the United States and from at least one instance in this country (S. V. Golledge: Vet. Record, 1932, xii., 1499) there are strong reasons for believing that such milk-borne outbreaks arise through multiplication within the cow's udder of hæmolytic streptococci which are derived from infected human beings during the process of hand milking. In the United States it has been proved that, although obvious symptoms of mastitis may not be present in such infected cows at the time the veterinary examination is made, they may nevertheless be discharging in their milk millions of hæmolytic streptococci per c.cm. In this way a single cow can bring about gross contamination of the mixed milk of the herd. It is inconceivable that widespread epidemics in the human population could occur without gross contamination of the milk-supply, or that this could arise from direct contamination of the milk by infected human beings. Moreover, experiments which are being conducted in this institute are showing that *Strept. pyogenes*, added to raw milk which is then kept at 22° C., does not multiply appreciably until the milk has been stored for some 36 to 48 hours.

I am, Sir, yours faithfully,

F. C. MINETT.

Research Institute in Animal Pathology, Royal Veterinary College, London, N.W., Sept. 26th.

SURGICAL INSTRUMENTS

To the Editor of THE LANCET

SIR,—My attention has been drawn to a remark made by Mr. Denis Browne at the Oxford B.M.A. meeting (reported in THE LANCET, August 15th, p. 378) that one of the profession's primary curses is that "instruments were made by people who did not understand their use, and used by people who did not understand their making." It was Burke, I think, who stated that one could not draw up an indictment against a nation, and I venture to protest that there are many in the surgical instrument industry who understand the uses to which instruments are put.

It is true that the instrument-maker cannot use instruments under operating-theatre conditions and the surgeon does not manufacture his own instruments. On both sides, therefore, such knowledge will always be theoretical. Another difficulty is the number of separate branches of surgery. The kit of an ophthalmic, plastic, E.N.T., or orthopædic surgeon may each contain 100 to 200 tools of patterns unused in any other branch of surgery. When an instrument has been made to the satisfaction of its inventor, the general practice of reputable firms in the industry is to make an exact duplicate from which all other copies are taken. This puts the responsibility of the shape and design of a surgical instrument on the surgeon whose name it bears. But Mr. Denis Browne's remark draws attention to a weak patch in the industry which is frequently shown when an instrument- or appliance-maker's assistant is asked to assist a surgeon who designs an instrument or appliance. There are not at present a sufficient number of trained assistants capable of speaking with the surgeon in his own language and understanding those primary surgical and mechanical difficulties, and the anatomical limitations of the surgeon and his patient, which are encountered when designing instruments. The leading members of the industry have, therefore, recently founded an Institute of British Surgical Technicians in order to supply a trained body of men who have studied those basic fields of knowledge where the surgeon and craftsman meet in common endeavour.

On its educational side a three-year course of training is in being. The subjects studied are mathematics, physics, chemistry, metallurgy, anatomy, physiology, pathology, pharmacology, and finally the principles of surgery and surgical instruments. The training has been arranged to meet the difficulties of the surgical instrument and appliance industry. To supplement this work the Institute has also—with the assistance of members of the surgical profession, to whom it is deeply indebted—arranged lectures to their workshop craftsmen on the use of surgical instruments. The lectures given last year were attended by some 200 men; it will thus

be seen that there is a serious effort being made in the British surgical industry to train their personnel. The scheme has been running but a few years and its benefits can only be judged by experience.

If Mr. Denis Browne could persuade the powers that be to allot us funds for research purposes, such help would be warmly welcomed by the Institute of British Surgical Technicians who have many problems awaiting resolution. It may interest your readers to know that it had been foreseen that the limited knowledge of surgery imparted by the above-mentioned training, combined with manufacturing technical ability, might lead to the encouragement of a certain undesirable type of practitioner in the appliance field, and therefore the members of the Institute and their pupils have voluntarily signed a code only to work in coöperation with legally qualified medical practitioners.

I am, Sir, yours faithfully,

H. GUY DREW,
Chairman of the Council, Institute of Brit. Surg. Technicians.

Sept. 25th.

SPANISH MEDICAL AID

To the Editor of THE LANCET

SIR,—A committee has been formed in Holborn and West Central London to interest the public in and to raise money for medical aid for Spain in collaboration with the National Spanish Medical Aid Committee. It is hoped that the response will be big enough to maintain a small unit completely. A meeting has been arranged at the Conway Hall on Monday, Oct. 5th, at 8.30 P.M., and the speakers include Prof. J. R. Marrack and Prof. J. B. S. Haldane, F.R.S. I appeal to your readers to respond to the urgent need of the Spanish people by coming to the meeting, or sending donations or offers of help to me.—I am, Sir, yours faithfully,

JANET VAUGHAN,
Chairman.

Holborn and West Central London Committee for Spanish Medical Aid, 6, Gordon-square, W.C.1, Sept. 28th.

MEDICAL SCHOOL LIBRARIES

To the Editor of THE LANCET

SIR,—In connexion with the annotation under the above heading on p. 754 of your issue for Sept. 26th, it may interest your readers to hear that since March, 1926, instruction in the use of the library and in bibliographical methods has been given each session to new students in the London School of Hygiene and Tropical Medicine, which is, however, entirely a post-graduate institution. This instruction, in its fullest form as given to the bacteriology class, now consists of three lectures illustrated by lantern slides, each lecture being followed by a period for practical exercises.

In the first talk the chief contents of the library, its arrangement, and the regulations for its use are described, the method of classification in use is explained, and a few of the most important rules governing the compilation of the catalogue are illustrated by lantern slides of typical catalogue entries. Then follows a conducted tour round the library and practical tests in the locating of books on the shelves by the use of the catalogue or classification scheme. The second lecture deals with the principal reference books, abstract journals, and periodical indexes, and is designed to reveal to the student some of the wealth of bibliographical material at his disposal and the way to use it for finding out information. The practical work here consists in hunting up references from incomplete data. The third lecture is a lesson in the compilation of bibliographies and lists of references, the correct manner of setting them out, and the abbreviation of the titles of periodicals. The aim here is to enable students to make their own literary work as helpful as possible to others. This too is followed by practical tests.

Owing to the crowded state of the public health and tropical medicine curricula, the instruction to new students in these two classes has to be drastically cut by the omission of all practical work and by the reduction of the number of lectures from three to two and to one respectively. It is believed that such instruction can do something, however little, to repair at the eleventh hour a gap that has unfortunately been left in the undergraduate medical education of this country.

I am, Sir, yours faithfully,

CYRIL C. BARNARD,
Librarian, London School of Hygiene and Tropical Medicine.

Sept. 29th.

AN ALLEGED REMARK

To the Editor of THE LANCET

SIR,—Owing no doubt to an error in the preparation of the index, certain incidents in Prof. Harvey Cushing's recently published book "From a Surgeon's Journal 1915–1918" are attributed to myself. The matter would be of no importance except for an alleged remark of mine, on page 154, about Sir Almroth Wright. As I never made this, and should in any case have been wholly incompetent to criticise Sir Almroth's work, I should like to make this clear and say that I did not have the pleasure, and honour, of meeting Prof. Cushing until about ten years after the war was over.

I am, Sir, yours faithfully,

H. H. BASHFORD.

General Post Office, London, E.C., Sept. 29th.

EXPLORATORY THORACOTOMY

To the Editor of THE LANCET

SIR,—An important factor in the lack of progress of œsophageal surgery has probably been a totally unjustified fear of opening the pleura. In your last issue Mr. O'Shaughnessy draws attention to the comparative impunity with which transpleural explorations may be made if suitable anæsthesia is employed.

Experience with a large series of intrapleural operations has convinced me that the use of differential pressure anæsthesia makes an exploratory thoracotomy as safe as an abdominal exploration. Under such circumstances the opening of the pleura is attended by no disturbance recognisable by either the anæsthetist or the operator. The suggestion, recently revived, that the preliminary establishment of an artificial pneumothorax is an adequate alternative is in my opinion a retrograde step, despite the striking successes obtained by King and Muir. It is obviously impossible to guarantee that both pleural cavities will not be opened during any extensive mediastinal dissection; such an occurrence is only safe in the presence of differential pressure, otherwise the resultant bilateral pneumothorax would prove fatal.

That the disturbance of such a thoracotomy is negligible is illustrated by a case at present under my care. In a female, aged 43 years, suffering from œsophageal carcinoma, the œsophagus had been exposed and extensively mobilised for radium applications on three occasions within a period of a month; in each case approach was by the transpleural route—twice on the right side and once on the left. Differential pressure anæsthesia protected her from any disturbance of her normal respiratory and cardio-

vascular functions both during the operations and in the convalescent period which is now complete.

I am, Sir, yours faithfully,

GEORGE A. MASON.

Newcastle-upon-Tyne, Sept. 24th.

FIXED DENTAL APPLIANCES

To the Editor of THE LANCET

SIR,—With reference to the letter of Mr. Olver in your issue of Sept. 5th, actual experience is perhaps more valuable than theoretical considerations. In 1905, following an accident and the loss of front teeth, there was constructed for me a 4-tooth fixed bridge, which is attached to the roots of a canine and a central incisor. This has never given me the least trouble, and to-day, after some 31 years, the condition of the surrounding tissues is entirely satisfactory, and X ray examination shows an equally satisfactory condition of the teeth roots. Perhaps I should add that the work was done by a highly skilled dentist, who has subsequently been responsible for after-care.

I am, Sir, yours faithfully,

Sept. 28th. NOEL BARDSWELL.

ANTITOXIN TREATMENT OF SCARLET FEVER

To the Editor of THE LANCET

SIR,—Dr. Burton queries the rarity of desquamation in my cases of scarlet fever treated with intravenous or intraperitoneal antitoxin and discharged from hospital after a short isolation period. In Table III. of my article the *average* isolation period in 2428 intravenous cases was shown to be 18·2 days and in 733 intraperitoneal cases 21·2 days. The series inevitably included many cases in which the isolation period was longer than the average. The period of observation and the number of cases involved were therefore quite sufficient for the determination of the point with certainty.

Dr. Burton has a "feeling" that the same immediate results can be produced by adequate doses given intramuscularly. One wonders upon what experience of intravenous and intraperitoneal antitoxin treatment of scarlet fever his feeling is based. I agree that in some mild cases immediate results may be similar, but even in these desquamation is not so consistently absent. In the sharper cases, however, and particularly in those of septic type, the great difference in immediate results between intramuscular antitoxin on the one hand and intravenous or intraperitoneal on the other is patent to any observer. "Adequate" doses given intramuscularly are usually from one and a half to four times the intravenous or intraperitoneal doses—a point well worth remembering when the cost of routine antitoxin treatment of scarlet fever is being considered.

With regard to the "grave risks" to which Dr. Burton refers, I would say that the routine use of the intravenous route requires reasonable care and vigilance, some experience and judgment, and also some means of selecting and maintaining in stock those batches of antitoxin which prove to be relatively free from the unknown shock-producing constituent. These may be stringent but are by no means impracticable conditions. But what are the risks of intraperitoneal injection in a hospital? I know of none that cannot be avoided by the most elementary precautions and the simplest technique.

I am, Sir, yours faithfully,

H. STANLEY BANKS.

Park Hospital, Hither Green, London, S.E., Sept. 29th.

BACTERIOLOGICAL GRADING OF MILK

To the Editor of THE LANCET

SIR,—In milk examinations for report to the Ministry of Health from Jan. 1st next the plate count is to be superseded by the methylene-blue reduction test. Since the coliform presumptive test is retained the assumption is that the reduction test gives the same general results as the plate count. Now in spite of the acknowledged though over-emphasised inaccuracy of the latter, it does give results which are fairly comparable over a period of years, as a general indication of the cleanliness or otherwise of milk samples. Does the reduction test give the same?

In my hands there is frequently a marked disparity between the count and the reduction time in parallel tests. For instance such results as these:—

Reduction time in hours.	Plate count per c.cm.	Reduction time in hours.	Plate count per c.cm.
1½ ..	1,700	4½ ..	116,600
3 ..	2,350	Over 4½ ..	132,800
3 ..	120,400	,, 4½ ..	346,400
4 ..	8,800	,, 4½ ..	60,000
4½ ..	4,250		

These results are somewhat disconcerting, and suggest that factors are operating in the reduction test that do not influence the plate count. One wishes therefore to know which test is the better indication of cleanliness or otherwise. I should be interested in hearing the experience of others who are constantly engaged in milk examinations.

I may add that in my experience the reduction test agrees far more closely with the coli content than with the plate count.

I am, Sir, yours faithfully,

A. H. PRIESTLEY.

Public Health Laboratory, Burnley, Sept. 25th.

THE PATIENT LOOKS AT THE HOSPITAL

To the Editor of THE LANCET

SIR,—In the book which you reviewed last week Miss Florence Fidler, though kind to doctors, has some hard things to say about nurses and voluntary hospitals, and although many will not be able to go all the way with her, it must be admitted that certain of her criticisms strike home. The 1932 Report of THE LANCET Commission on Nursing left little to be said on this subject. Miss Fidler complains that little or nothing has been done to improve matters since its issue. In her view, nurses are stultified by a training which is too militaristic in conception and which sets too great store by trivial detail at the expense of more vital things. The nurse, she maintains, like the soldier, is taught slavishly to obey orders rather than to think for herself. Without contesting the point that "the best soldier is the stupidest," which could be better dealt with by the Staff College at Camberley, one is tempted to wonder to what extent a nurse should think for herself. That a probationer's main duty is to obey orders few will deny. To adapt W. S. Gilbert, the awful prospect of a lot of bright young "pros." in close proximity, all thinking for themselves, is what no one could face with equanimity—not even, I suspect, the patient. Miss Fidler further contends that she would rather be nursed by an intelligent amateur than by a professional nurse. Not many, I imagine, will agree with her, and I must conclude either that she has been singularly fortunate with the amateurs or singularly unfortunate with the professionals whom she has met. Nor is she more kindly

disposed towards the voluntary hospitals. With the story of the patient who was wakened to be given a sleeping draught and with the hardship of being roused at cock-crow to be washed we are all familiar, but with the difficulty of administering a huge hospital without a time-schedule, most of us are mercifully less so. Nevertheless, it is told of a certain distinguished surgeon that, when about to operate, he would sometimes ask a new dresser, "Who is the most important person in this theatre at the present time?", to which he received the invariable and incorrect reply, "You, sir." The fact that the patient was more important than the surgeon always came as a shock to the dresser, and that this should be so is, perhaps, not without significance. Although as students most of us were frequently enjoined to examine the patient, not merely his pathological knee or elbow, and although Allbutt railed against the practice of describing a disease as an "entity," a term properly to be applied to the sufferer and not to the disease, it may still be true that we are too much in the habit of regarding hospital patients in some sort as convenient—and insentient—receptacles for interesting morbid processes. The more sensitive among us may recall with horror clinical demonstrations in the medical wards in which the hopelessness of the prognosis was enlarged upon in graphic and untechnical terms which the patient, no less than the student, could readily understand. Mr. Henry Ford has noted with disapproval that the hospital patient in the United States seems all too often to be looked upon as the chattel of the physician or surgeon in charge, and Miss Joyce Dennys has humorously and shrewdly put forward certain aspects of the patient's case. It is obviously salutary that doctors and nurses should sometimes see themselves as patients see them however unpalatable and iconoclastic the patient's views may be.

I am, Sir, yours faithfully,

Sept. 25th. PRACTITIONER.

MEDICAL NEWS

University of Leeds

At recent examinations the following candidates were successful:—

M.D.

E. C. Allibone (with distinction) and Marjorie Haynes.

FINAL M.B., CH.B. EXAMINATION

Part I.—K. B. Aske, Eileen M. Bateson, D. Benson, W. A. Bridgwood, R. Cargill, S. P. H. Fergus, H. T. Hardy, L. Roberts, C. H. Robinson, and A. H. Snalam.

Part II.—Rosemarie Blackwood, Joan M. Coward, F. A. Crosfill, C. L. Davidson, M. Glick, M. Headlam, M. A. Kader, R. C. Lawrence, E. Moore, R. Petticrew, J. D. F. Thornton, and P. H. Wyon.

Part III.—C. L. Davidson (with second-class honours), Joan M. Coward, F. A. Crosfill, M. Glick, M. Headlam, M. A. Kader, R. C. Lawrence, E. Moore, R. Petticrew, J. P. Senior, J. D. F. Thornton, and P. H. Wyon.

L.D.S.

B. Blackburne, L. K. Caygill, Mary B. Gaukroger, S. Goldman, P. R. Greenwood, F. Grindrod, K. M. Newbould, Annie Pickering, and B. Watsaman.

D.P.M.

A. Kelly.

D.P.H.

Kathleen Horne, W. Lomax, N. W. Roberts, S. Suvi, and Barbara M. G. Taylor.

The William Hey gold medal and the West Riding panel practitioners prize in medicine were awarded to Robert Love Lamming.

University of London

Five lectures on the physiology of vision will be given by Dr. R. J. Lythgoe on Mondays, beginning on Oct. 12th, and four lectures on the physiology of hearing and speech by Dr. Phyllis Tookey Kerridge beginning on Nov. 16th. On Tuesdays, Oct. 13th, 20th, 27th, and Nov. 3rd, Dr. Charles Reid will lecture on the endocrine organs in relation to metabolism. The lectures will be given at 5 P.M. at University College, Gower-street, London, W.C. They are open to all.

British Institute of Philosophy

An address entitled "On Being a Philosopher" will be given by Prof. H. F. Hallett at University College, Gower-street, London, W.C., at 8.15 P.M. on Tuesday, Oct. 13th. Cards of admission can be obtained from the director of studies at University Hall, 14, Gordon-square, London, W.C.1.

Royal Sanitary Institute

A sessional meeting of this institute will be held in the Guildhall, Norwich, on Saturday, Oct. 17th, when Dr. T. Ruddock-West, medical officer of health for Norfolk, will open a discussion on cultural methods for the isolation of tubercle bacilli in milk.

On Friday, Oct. 23rd, a meeting will be held in the Town Hall, Loughborough, when the administration of the accredited milk scheme in Leicestershire will be discussed. Dr. J. A. Fairer, medical officer of health for Leicestershire, will be the opening speaker.

King's College Hospital

On Wednesday, Oct. 14th, at 8.30 P.M., Sir StClair Thomson is addressing the Listerian Society of this hospital upon A House Surgeon's Recollections of Lord Lister. The meeting is open to all members of the medical profession.

Medical Peace Campaign

The meeting held last Thursday in the Hastings Hall, B.M.A. House, under the chairmanship of Dr. E. P. Poulton, was attended by some 50 medical men and women, when it was resolved to form a British section of the International Medical Association for the Prevention of War. Various matters for investigation and research were suggested, and it was agreed to call a public meeting for discussion of them at some time to be decided later. Anyone desiring to join the section or willing to serve on the proposed advisory council should communicate with the hon. secretary, Dr. Cecile Booysen, at 12, Kent-terrace, London, N.W.1.

Westminster Hospital Dinner

There was a large attendance of past and present students at the annual dinner of the Westminster Hospital medical school, held at the Trocadero Restaurant on Sept. 26th. Mr. A. Tudor Edwards, who presided, in proposing the toast of the medical school, paid tribute to the late Mr. K. A. Wolfe Barry, who as chairman of the committee of management had for many years given a great deal of his time to the Westminster Hospital. It was sad that he had not lived to see the new hospital and medical school, in the planning of which he had been keenly interested. They gave a cordial welcome to his successor, Mr. Bernard Docker. Mr. Tudor Edwards said that the past year had seen great advances in the scheme for building the new hospital on the Embankment. A few months ago satisfactory negotiations had been concluded for the sale of the old site. Work on the medical school and nurses' home was now proceeding; funds amounting almost to £42,000 had been collected, but a further £11,000 was still required. The need for the move was shown in the medical school by the great increase in the entry of students, for in a few years they had doubled their numbers. Dr. John Davies, in a lively and humorous speech responding to the toast, pleaded for a closer association between past and present students and for more readers of *Broadway*, the hospital magazine. Mr. N. F. Coghill replied on behalf of the students and gave an encouraging account of the various clubs' activities. He said that it was important but difficult to interest the preclinical students in the clubs before they came to the hospital. Dr. Adolphe Abrahams, dean of the medical school, wittily proposed the toast of The Guests, to which Lord Horder and Major-General W. P. MacArthur replied. Dr. Arnold Stott proposed the health of the chairman.

Royal Institute of Public Health

The Harben lectures for 1936 will be delivered by Dr. F. J. Poynton, consulting physician to University College Hospital and the Hospital for Sick Children, Great Ormond-street, at the lecture hall of the Institute of Hygiene, 28, Portland-place, London, W., on Oct. 12th, 13th, and 14th at 4 P.M. He will speak on juvenile rheumatism.

Society of Chemical Industry

The programme of the London section of this society includes the following lectures: Mr. H. E. Cox, D.Sc., the chemical aspects of dermatitis (Oct. 5th); Mr. F. Tattersfield, D.Sc., and Mr. J. T. Martin, modern developments in insecticides (Dec. 7th); Mr. E. R. Davies, infra-red photography and its field of application (Feb. 1st); Prof. F. Paneth, natural and artificial radio-elements and their practical applications in chemical and biological research (March 1st). The meetings will take place at 8 P.M. at Burlington House, W.1.

Florence Stoney Prize

An award of this prize, which is open to past students of the London School of Medicine for Women, will shortly be made for an essay or published paper on the treatment of (*a*) cancer, or (*b*) hyperthyroidism, by methods primarily not surgical; or for laboratory work associated with the influence of radiations. Essays should be sent to the warden of the school, 8, Hunter-street, London, W.C., by May 1st.

Westminster Hospital and the Coronation

Stands are being constructed at this hospital from which a view of the Coronation procession can be obtained. The proceeds of the stands, which will accommodate 2037 spectators, will be devoted to the rebuilding of the hospital and its medical school. The price of seats ranges from ten to fifty guineas.

Presentation to Dr. J. J. Adams

To commemorate his 50 years of service as coroner and 60 years as medical practitioner in Antrim, a public presentation has been made to Dr. J. J. Adams, consisting of his portrait and of an illuminated album containing illustrations of his residence and of the various halls and other public gifts that he had presented to the district. Dr. Adams was the last of the Irish coroners to be elected by public vote; he was appointed a justice of the peace in 1893.

British Emergency Force in Palestine

Bt. Colonel R. C. Priest and Major A. G. Harsant have been appointed consulting physician and consulting surgeon respectively to the British Emergency Force in Palestine, with the temporary rank of colonel.

Colonel Priest was educated at Cambridge University and St. Thomas's Hospital, graduating M.B. in 1908. The following year he joined the Royal Army Medical Corps. He holds the degrees of M.A. and M.D. Camb., and M.R.C.P. Lond., and was elected a Fellow of the College this year. He also holds the diploma in tropical medicine and hygiene. Colonel Priest was medical specialist at the Queen Alexandra Military Hospital, Millbank, from 1928 to 1933, since when he has been serving in Egypt. He is an honorary physician to the King.

Major Harsant studied at the London Hospital and qualified in 1916, entering the Service in the same year. He obtained the F.R.C.S. Eng. in 1930, and the degrees of M.D. and M.S. Lond. in 1932 and 1933. He also holds the diploma in tropical medicine and hygiene. Before taking up the appointment of surgical specialist at Cairo in 1932 he filled a similar post in the Aldershot Command.

Appointments

CAMMOCK, W. R., M.B. Glasg., F.R.C.S. Edin., has been appointed Hon. Surgeon in Charge of the Ear, Nose, and Throat Department of the Rochdale Infirmary.

CLARK, ARNOLD, M.D., M.R.C.P. Lond., Clinical Tuberculosis Officer for Dorset.

KAHN, J. MORTON, M.B. Edin., D.M.R.E., Visiting Radiologist to the Royal Sea-Bathing Hospital, Margate.

LAURIE, EDITH, M.B. Edin., D.P.H., Assistant Medical Officer of Health for Burnley.

Queen Charlotte's Maternity Hospital.—The following appointments are announced:—

TALBOT, R. R., M.B. N.Z., Senior Resident Medical Officer;
CAPLE, H. H., M.B. Toronto, D.P.H., Assistant Resident Medical Officer;
BARKER, R. C., M.B. Belf., Resident Anæsthetist and District Resident Medical Officer; and
PARFITT, M. A., M.R.C.S. Eng., Resident Anæsthetist.

Certifying Surgeons under the Factory and Workshop Acts: Dr. H. L. GROOM (Wisbech District, Cambridge), and Dr. P. H. FLOCKTON (Wollaston District, Northants).

Vacancies

For further information refer to the advertisement columns

Alton, Hampshire, Lord Mayor Treloar Cripples' Hospital.—Third Asst. Res. M.O., at rate of £150.
Australia, Sydney Hospital, N.S.W.—Director of the Kanematsu Memorial Institute of Pathology, £1500.
Barnstaple, North Devon Infirmary.—Res. M.O., at rate of £150.
Belgrave Hospital for Children, 1, Clapham-road, S.W.—Asst. Surgeon for Ear, Nose, and Throat, 25 guineas. Also two H.P.'s and one H.S., each at rate of £100.
Birmingham City Mental Hospital.—Jun. Asst. M.O., £350.
Brighton, Royal Sussex County Hospital.—Cas. H.S., £120.
Burnley Victoria Hospital.—H.P., at rate of £150.
Chesterfield and North Derbyshire Royal Hospital.—Cas. O. and Fracture H.S., at rate of £200. Also Final Year Student.
City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P., at rate of £100.
Coventry and Warwickshire Hospital.—H.S. for Aural and Ophthalmic Depts., at rate of £125.
Dartford, Kent, River Hospitals.—Res. Med. Supt., £1200.
Derby, Derbyshire Royal Infirmary.—Pathologist, £750.
Ealing, King Edward Memorial Hospital.—Jun. Res. M.O., at rate of £150.
Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S., £100.
Glasgow Eye Infirmary.—Res. H.S., £100. Also Clin. Asst., £30.
Golden-square Throat, Nose and Ear Hospital, Golden-square, W.—Registrar. Also House Anæsthetist, at rate of £150.
Harrogate Royal Bath Hospital.—Res. M.O., £156.
Hertford County Hospital.—Sen. H.S., at rate of £200.
Hospital for Consumption, &c., Brompton, S.W.—Res. Surg. O., £150. Asst. Res. M.O., Also H.P., at rate of £150 and £50 respectively.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Res. M.O. and H.P., at rate of £150 and £100 respectively.
Huddersfield, Storthes Hall Mental Hospital, Kirkburton.—Fifth Asst. M.O., £350.
Hull Royal Infirmary.—Res. Surg. O., £200.
Jersey General Hospital and Poor Law Infirmary.—Asst. Res. M.O., at rate of £150.
Lancaster Royal Infirmary.—Jun. H.S., at rate of £130.
Leicester, City Mental Hospital, Humberstone.—Second Asst. M.O., £600.
Lincoln County Hospital.—Sen. H.S., £250–£300.
Liverpool University and Maternity Hospital.—Res. Obstet. Asst. and Tutor, £250.
London Hospital, E.—Surgical First Asst. and Reg., £300. Also First Asst. and Reg. to Ear, Nose, and Throat Dept., £150.
London Hospital, E.—Assistant in X Ray Dept., £100.
London School of Medicine for Women, 8, Hunter-street, W.C.—Florence Stoney Prize, £25.
Macclesfield General Infirmary.—Second H.S., at rate of £150.
Maidstone, Kent County Ophthalmic Hospital.—Ophth. H.S., at rate of £200.
Manchester, Ancoats Hospital.—Anæsthetist, 1 guinea each attendance.
Manchester Royal Eye Hospital.—Junior H.S., £120.
Manchester Royal Infirmary.—Four H.S.'s, each at rate of £50. Also Res. Jun. M.O. for Barnes Convalescent Hospital at rate of £150.
Manchester, St. Mary's Hospitals.—Hon. Surgeon for Children's Dept.
Margate and District General Hospital.—Res. M.O., £150.
Melton, Suffolk, St. Audry's Hospital.—Jun. Asst. M.O., £350.
Metropolitan Hospital, Kingsland-road, E.—Sen. and Jun. H.P.'s and H.S.'s, also Cas. O. and Res. Anæsthetist, each at rate of £100.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O., at rate of £150. Also Out-patient M.O., at rate of £125.
National Temperance Hospital, Hampstead-road, N.W.—H.P., at rate of £100.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Jun. Surg. Reg., £150.
Norwich, Norfolk Mental Hospital.—Asst. M.O., £350.
Nottingham City Mental Hospital.—Jun. Asst. M.O., £350.
Nottingham General Hospital.—H.S. for Ear, Nose, and Throat Dept., at rate of £150.
Paddington Green Children's Hospital, W.—H.P. and H.S., each £150.
Paris-Hertford British Hospital.—Res. M.O., £150.
Pontypool and District Hospital.—Res. M.O., £150.
Prince of Wales's General Hospital, N.—Hon. Physician to Dept. of Physical Medicine.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—Asst. Surgeon to Ear, Nose, and Throat Dept.
Princess Louise, Kensington, Hospital for Children, St. Quintin-avenue, W.—H.S., at rate of £120.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O., at rate of £150.
Queen's Hospital for Children, Hackney-road, E.—Asst. Physician. Also H.S., at rate of £100.
Radium Institute, Riding House-street, W.—Res. M.O., at rate of £250.
Richmond, Surrey Royal Hospital.—Sen. and Jun. H.S., at rate of £150 and £100 respectively.
Royal Free Hospital, Gray's Inn-road, W.C.—Res. Cas O., £150
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Two Surg. Regs., each £105.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. H.S. and Res. H.P., at rate of £155 and £150 respectively.
St. Mary's Hospital Institute of Pathology and Research, Paddington, W.—Research Studentship, £200.
Sheffield Children's Hospital.—H.S., at rate of £100.
Stafford, Standon Hall, Orthopædic Hospital.—H.S., £200.
Sudan Medical Service.—Two Med. Inspectors, each £E720.

Surrey County Council.—Asst. M.O., £600.
Swanley, Kent, Hospital Convalescent Home.—Res. M.O., at rate of £200.
Truro, Royal Cornwall Infirmary.—H.S., £170.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O., £200. Also Dental Surgeon.
West London Hospital, Hammersmith-road, W.—Hon. Asst. Radiologist (Diagnosis). Also Res. Cas. O., at rate of £100.
Weston-super-Mare Hospital.—Res. H.P., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Oban (Argyll), Kingswood (Gloucester), Turriff (Aberdeen), and Waltham Abbey (Essex).

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Oct. 6th.
Orthopædics. 5.30 P.M. Mr. A. T. Fripp: 1. Pseudo-fracture of the Femur. Mr. J. A. Cholmeley: 2. Transplantation of the Biceps for Quadriceps Paralysis. Mr. H. J. Seddon: 3. Extensive Brachial Birth Paralysis.
FRIDAY.
Clinical. 5.30 P.M. Mr. Hamilton Bailey: 1. Paget's Disease Affecting the Left Femur only. 2. Ectopia Vesicæ Treated by Implanting Ureters into the Bowel. Mr. Hamilton Bailey and Dr. Garland: 3. Congestive Heart Failure Treated by Thyroidectomy. Mr. Hamilton Bailey and Dr. K. D. Keele: 4. Addison's Disease Treated by Suprarenal Grafting. Dr. R. W. B. Ellis: 5. Gargoylism (Osteochondrodystrophy, Corneal Opacities, Hepatosplenomegaly, and Mental Defect) in a Boy of 21 months.
Ophthalmology. 8.30 P.M. Mr. W. H. McMullen: Post-operative Distress (Presidential Address).

HARVEIAN SOCIETY OF LONDON.
THURSDAY, Oct. 8th.—8.30 P.M. (Manson House, 26, Portland-place, W.), Dr. Peter Kerley: Value of X Ray Diagnosis to the General Practitioner.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MENTAL HYGIENE REUNION.
MONDAY, Oct. 5th.—2.30 P.M. (Ministry of Health), Dr. Jakob Billström, Dr. Repond, and Prof. G. Vermeylen: Mental Hygiene and the Cinema.
TUESDAY.—10.30 A.M., Dr. Hans Roemer, Prof. Viktor Wigert, and Dr. Heinrich Kogerer: Mental Hygiene and the Nurse. 2.30 P.M., Dr. K. H. Bouman, Prof. L. Rochlin, and Dr. J. R. Rees: Mental Hygiene and the School (11–18 years).

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
MONDAY, Oct. 5th.—2.15 P.M., Dr. Duncan White: Radiological Demonstration.
TUESDAY.—4.30 P.M., Dr. H. Yellowlees: Psychological Medicine in Practice.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2.30 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. J. E. Barnard, F.R.S.: Microscopy.
THURSDAY.—2.15 P.M., operative obstetrics. 2.30 P.M., Mr. Geoffrey Jefferson: Surgery of Nervous System. 3.30 P.M., Prof. F. J. Browne: Antenatal Care.
FRIDAY.—2.15 P.M., Department of Gynæcology: Pathological demonstration.
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations. Obstetrical and gynæcological clinics or operations.

UNIVERSITY COLLEGE HOSPITAL, W.C.
THURSDAY, Oct. 8th.—10 A.M., Dr. J. C. Hawksley: Diagnosis and Treatment of Gastric Disorders. 11 A.M., Mr. Morriston Davies: General Principles of Diagnosis of Diseases of the Chest. Noon, Dr. E. A. Blake Pritchard: Varieties of Unilateral Exophthalmos. 2 P.M., Mr. R. S. Pilcher: The Diagnosis of Malignant Disease of the Pharynx and Œsophagus. 2.30 P.M., Dr. R. W. A. Salmond and Mrs. Gwenda Hilton: Demonstration of Cases Treated by X Rays. 3 P.M., Mr. E. A. Devenish: The Treatment of Acute Infections of the Hand. 3.30 P.M., Mr. H. Neame: The Differentiation of Iritis from Conjunctivitis. 4 P.M., Prof. S. J. Cowell: Dietetics in Everyday Practice.
FRIDAY.—10 A.M., Dr. A. M. H. Gray: Some Fungus Infections of the Skin and their Treatment. 11 A.M., Mr. E. K. Martin: The Surgery of the Biliary Tract. Noon, Dr. M. L. Rosenheim: Mandelic Acid in the Treatment of Urinary Infection. 12.30 P.M., Dr. M. Maizels: Sedimentation-rate. 2 P.M., Mr. Myles Formby: Nasal Symptoms of Allergy. 3 P.M., Mr. F. J. F. Barrington: Tumours of the Bladder. 3.40 P.M., Dr. W. J. Pearson and Dr. R. H. Dobbs: Demonstration of the Oxygen Tent. 4 P.M., Sir Bernard Spilsbury: Circulatory Disturbances Causing Sudden Death.
Open only to former students of the hospital.

ST. MARY'S HOSPITAL, W.
THURSDAY, Oct. 8th.—5 P.M., Dr. G. O. Barber: Types of Practice and Methods of Purchase.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square, W.C.
WEDNESDAY, Oct. 7th.—2 P.M., Dr. S. Blackman: Radiology (first of eight lectures).
FRIDAY.—2.30 P.M., Mr. H. Stobie: Surgical Procedures (first of six lectures).

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Oct. 5th.—3.30 P.M., Dr. Kinnier Wilson: The Motor System.
TUESDAY.—3.30 P.M., Dr. Carmichael: The Sympathetic Nervous System.
WEDNESDAY.—3.30 P.M., Dr. Kinnier Wilson: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Carmichael: The Sympathetic Nervous System.
FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology (1).
Out-patient clinic daily at 2 P.M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
WEDNESDAY, Oct. 7th.—2 P.M., Dr. Alan Moncrieff: Care of the New-born. 3 P.M., Dr. W. W. Payne: The Source and Action of the Vitamins.
Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.
TUESDAY, Oct. 6th.—5 P.M., Dr. M. Sydney Thomson: Animal Diseases Communicable to Man.
WEDNESDAY.—5 P.M., Dr. I. Muende: Introduction to Histopathology of the Skin.
THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Ringworm Infections (Chesterfield Lectures).

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Oct. 5th.—10 A.M., medical wards, genito-urinary operations, skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical wards and clinic, medical, eye, and gynæcological clinics, gynæcological wards. 4.15 P.M., Mr. Green-Armytage: Functional Hæmorrhage.
TUESDAY.—10 A.M., medical wards, dental clinic. 11 A.M., surgical wards, throat operations. 2 P.M., operations, medical, surgical, and throat, nose, and ear clinics. 4.15 P.M., Dr. Sydney Owen: The New-born Baby.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture demonstration. 2 P.M., operations, medical, surgical, eye, and genito-urinary clinics. 4 P.M., venereal diseases.
FRIDAY.—10 A.M., medical wards, dental and skin clinics. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat, nose, and ear clinics. 4.15 P.M., Dr. Geoffrey Konstam: Thyrotoxic Heart Disease.
SATURDAY.—10 A.M., medical wards, children's and surgical clinics.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Oct. 9th.—4 P.M., Dr. D. R. Paterson: Upper Dysphagia (Annual Address).

INSTITUTE OF MEDICAL PSYCHOLOGY, Malet-place, W.C.
THURSDAY, Oct. 8th.—3 P.M., Dr. H. Crichton-Miller: Aim and Scope of Psychotherapy. 4.30 P.M., Dr. J. R. Rees: The Psychiatric Interview—Difficulties of Patient and Physician. 5.45 P.M., Dr. Rees: Persuasion and Re-education.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 5th, to SATURDAY, Oct. 10th.—BROMPTON HOSPITAL, S.W. M.R.C.P. course in chest diseases (twice weekly, at 5 P.M.).—INFANTS HOSPITAL, Vincent-square, S.W. Mon., Tues., Wed., and Thurs., 8 P.M., primary F.R.C.S. anatomy and physiology course.—ROYAL CHEST HOSPITAL, City-road, E.C. Mon., Wed., and Fri., 8 P.M., advanced course in chest diseases.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. All-day course in cardiology.—METROPOLITAN GENERAL HOSPITAL, Kingsland-road, E. All-day course in medicine, surgery, and the specialties.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C. Afternoon course in dermatology.—ROYAL CHEST HOSPITAL, City-road, E.C. Sat. and Sun., course in chest diseases.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, Oct. 6th.—10.45 A.M. (Queen's Hospital), Dr. O. Brenner: Cardiac Pain. 11.30 A.M., Mr. J. N. Sankey: The Management of Thyrotoxicosis. 12.15 P.M., Mr. D. J. Evans: Problems in the Treatment of Middle-ear Disease. 2.30 to 4 P.M. (Children's Hospital), Prof. K. D. Wilkinson, Prof. Bertram Lloyd, and Dr. C. G. Teall: Empyema.
WEDNESDAY.—10.45 P.M. (General Hospital), Dr. J. M. Smellie: Pyuria and its Treatment with Mandelic Acid. 11.30 A.M., Mr. J. B. Leather: Surgical Affections of the Gall-bladder. 12.15 P.M., Mr. Beatson Hird: Ocular Pain and Headache.
This course is open to former students of the medical school.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Oct. 6th.—4.15 P.M., Mr. A. H. Southam: Acute Infections of the Hand.
FRIDAY.—4.15 P.M., Lantern Demonstration of Plastic Surgical Cases.

LEEDS PUBLIC DISPENSARY.
WEDNESDAY, Oct. 7th.—4 P.M., Mr. A. D. Sharp: Demonstration of Thyroxine Injection into the Middle Ear for Certain Forms of Deafness and Intractable Tinnitus.

NOTES, COMMENTS, AND ABSTRACTS

EDUCATION AND CITIZENSHIP

IT was at one time a common complaint in educated circles in the United States that the men who were ready to enter upon a political career were not representative of a sufficiently high standard of education and culture. At university gatherings, inaugural celebrations, anniversary occasions, and so on, the orator would frequently ask his young audience to remember that a debt was owed by all of them to the State, and that all should be ready to take a part in any burdens which the development of State or municipal enterprise would lay upon their shoulders if they accepted the responsibility. Addresses of this character were commoner two generations ago when, judging by the words of their own leading men, the conduct of public affairs was corrupt in too many cases and sometimes flagrantly so. Many of the abuses which were thus pointed out have disappeared but some have not, and Dr. W. J. Mayo, head of the staff at the Mayo Clinic, Rochester, U.S.A., would seem to consider that the well-educated classes in the United States are still not over-anxious to play a part in public affairs, while their participation in their working is necessary for the better development of the country.

We print below, in abridged form, his recent address to the students of Notre Dame University, Indiana :—

REVERENCE FOR EDUCATION

"The outstanding feature of American public life to-day is reverence for education. The cost of education borne by the American people is greater than any other expense supported by the people, and this burden is borne willingly, with the expectation that finer citizenship will be the result, and with the hope that the democratic form of government, to maintain which the nation has offered life and wealth in four great wars, shall be made safe and dependable in the years to come. As one travels through the United States one is impressed by the splendid school buildings seen in all sections. In nearly every village, no matter how remote or how poor, will be a structure, the school building, which is magnificent compared to its surroundings, a source of pride to the inhabitants, and regarded by them as a hostage for the future. The school-house is the proud monument to the desire of the people that their children shall receive a better education than they themselves had. It is a visible testimonial of their loyalty to the country in which they live, and of their resolute determination that its future shall be made secure, not by efforts of arms, but by efforts of intellect. Apparently there is an unconscious feeling that if we are to have the government we desire, and prosperity for all, it must come from education.

VALUE OF YOUTHFUL VIEWPOINT

"There is a divine discontent with the existing order of things which leads to progress. Youth is ever insurgent, dissatisfied with conditions as they exist, and this state of mind is necessary to progress. Youth has visions of the future which are not shared to an equal extent by those of middle and later age; youth is a builder of images, a dreamer of dreams. When guided by scientific imagination, youth builds images to be compared with known facts, and dreams true dreams. We of the older generation admit freely that our viewpoint has been greatly influenced by the misfortunes through which we have passed. We believe too often, as our elders believed when we were young, that youth is headstrong, unruly, without due reverence for the established order of things. The older generation is always uncertain about the younger generation. In earlier times young people were kept innocent, perhaps ignorant, with the expectation that innocence would be a protection to their morals and ethics. The young people are more sophisticated to-day, and perhaps because they know more of evil they will be better protected from it than they would had the so-called innocence of last generations been maintained. The old should remember that they represent the past, and that the young represent the future. For the best results, the wisdom of age must travel with the dreams of youth. Age carries mental scars left by experience which shorten vision, but age carries wisdom. Youth and age should travel together; each needs the other for orderly scientific advancement. Age, if it has gained something which is personal to the individual so that he has something to lose, will probably be conservative and will fear new experiences. Imagination is the gift of youth. In my hospital ward rounds I am always surrounded by the younger men; I give them from my experience, and they give me their fresh viewpoint.

PRESENT-DAY EDUCATIONAL TENDENCIES

"A smart column writer recently said that culture is what a person has left when he has forgotten what he learned in college. After I had had my laugh, I began to wonder whether there was not a good deal of truth in this definition of culture, for, after all, college education is supposed to teach us how to think as well as what to think. It is supposed to develop the power of reasoning and observation, to fire the imagination. To repeat what we have memorised, of itself is not more in effect than is done by a phonograph record, and perhaps is just about as informative. I sometimes question whether the present tendency to depend so much on memorising knowledge gives a sound basis of education for the future. Knowledge is static, wisdom is active and moves knowledge, making it effective. As I think back on my own classmates in college, I am impressed with the fact that many of them who have fine memories and stood at the heads of their classes, in some way in the after years missed acquiring wisdom and did not come up to our expectations. Some students can fill their minds with any given subject, book, chapter, and page, and can regurgitate this knowledge at examination and thereby win class leadership. Such memorising of knowledge has not necessarily relation to wisdom. After all, the best the college can do is to give the students breadth of knowledge, not necessarily depth of knowledge.

"As I look on the present-day tendencies in higher education, I notice a remarkable difference from conditions as they existed when I was a college student. The valuation of culture for its own sake was then in the ascendancy, and our eyes were fastened almost wholly on the past. And yet, knowledge of the past gave the foundation on which has been built the present, and on which we predict the future. Personally I have not been in sympathy with the view that because there are already so many well-trained men, something must be done to prevent younger men from entering our professional schools. It certainly is a sad commentary on our times if we introduce unnecessary obstructions and obstacles to prevent students from entering the professions or to trap unwary students—so that they may be prevented from continuing their studies after their course is started—unless such procedures result in turning out better men and are not merely evidence of an unconscious trade-union state of mind which tends to make a profession an aristocracy. Let us not get the idea that there are too many doctors, too many lawyers, architects, engineers, nurses, grocers, coal-miners, and what not. As a matter of fact, it would appear that there are too many of all of us; yet that assumption of itself refutes the argument that we must reduce the number in each class. It is almost a paradox that when we have too much of everything collectively, we worry most because we have too little individually.

"To-day is commencement day for you, and it means just what it says, not the end of education but the beginning of education which comes from living with our fellow men. General adult education progresses through books, newspapers and, to some extent, perhaps, through the radio and even the movies; but it is a different kind of education from that begun in the schools and colleges. Good roads and automobiles have enabled us to become better acquainted with different sections of the country, and if we are observing, we begin to get the idea, after all, of the solidarity of the American people. As we become more civilised we are beginning to emphasise not the differences that lead to antagonism but the common impulses and desires which lead to better understanding. What holds us together fundamentally is respect and affection for our country.

LOOKING AHEAD

"The large majority of the citizens of the United States are reasonably intelligent and, as far as their knowledge goes, reasonably fair-minded. Let us admit that we are governed by the average man doing the best he can to adjust governmental procedures to do justice to all, but subject to all sorts and kinds of propaganda. Many of the proponents of the various schemes and projects to cure our political ills, because they cannot marshal facts to appeal to the intelligence, must therefore, to gain a hearing, appeal to the emotions, which are only too easily aroused by prejudice, invective, and misleading statements. As a matter of fact, it appears at the present day to be quite the thing for some of the intellectual high-hats to try to prove that all the beliefs and institutions we hold dear are delusions. The so-called intelligentsia have been most vociferous in this direction. As an intelligent observer defined them, they are people who have been 'educated beyond their intelligence.'

"A change is coming in the social condition of the people of the United States which in a way is comparable to the change that is taking place in older countries through the elimination of hereditary royalty and nobility. Fortunately it does not take the average American citizen long to recognise that radical change from a government 'of the people, by the people, and for the people' which permits of free debate and expression of opinion would be disastrous. As a people, we realise how much better we are situated than are those peoples under the governments of communism, nazi-ism, or fascism, which promptly become tyrannical in order to enforce, through fear, the viewpoint of an organised minority and eliminate debate, free thinking, and other fruits of education. But we must ever recognise that the majority of our people must have so satisfactory a social condition that they will not become so desperate as to be mislead by pernicious propaganda of this description. One thing we all can agree upon is the value of education and faith that education will enable the young, who are to take our places, to solve their problems as we of the older generations solved ours. Out of this composite education we finally accept the idea that man does not live for himself alone but as an integral part of society."

The generation to which Dr. Mayo's father belonged was as regards the Middle West States a band of pioneers, and he speaks as one who has lived through enormous developments. His exhortation to the young American who is benefiting by great schemes for the promotion of education, to use his opportunities for the good of his country, has a universal application.

A DIFFICULT NAME.—In dictionaries and in scientific records the name of the famous Mendeleyev appears in three varieties of spelling, with or without accents. The Soviet Year Book spells the name as we now reproduce it.

CHANGING VIEWS ON TUBERCULOSIS

THE reader in search of curious facts connected with medical views on tuberculosis from the dawn of history until the present day will find a compact mine of information in a monograph recently published by Dr. Gerald B. Webb.[1] Bizarre remedies and loathsome concoctions more related to magic and mythology than to common sense will surprise nobody even vaguely familiar with ancient and medieval medicine. Far more astonishing are the instances in which modern ideas are expressed centuries before their time—e.g., Richard Morton in 1689, "But a skilful physician ought in this distemper to give directions about the air, eating and drinking, the passion of the mind, and the other things which belong to the government of the patient, with as much care as about the medicines. For without a careful ordering, and a cautious use of them, the most noble remedies signify nothing in the cure of consumption" (p. 174). Modern opponents of the excessive devotion to milk shown by some of their colleagues will agree with Gideon Harvey (1686), that the only milk which can cure consumption is pigeons' milk sold on the first of April. Cupping can hardly be used in America, as had the author ever seen it done he could hardly have described the excellent illustration of this procedure (from Avicenna's Canon) as the "use of cautery for pulmonary disease"; the flame illustrated is obviously being used to warm the air in the cups, thus creating a vacuum on cooling, just as it is to-day in many European countries. The book contains some unusual illustrations. It is well worth reading.

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[1] Clio Medica—Tuberculosis. By Gerald B. Webb, M.D., Lecturer on Medical History, University of Colorado. New York Paul B. Hoeber, Medical Book Department of Harper Bros. 1936. Pp. 205. $2.

Births, Marriages, and Deaths

BIRTHS

JAMESON EVANS.—On Sept. 24th, at Fleet, Hants, the wife of T. C. Jameson Evans, M.B., B.Chir., of a daughter.

MANSELL.—On Sept. 19th, at Sutherland-avenue, W., the wife of Major R. A. Mansell, R.A.M.C., of a son.

SPENCE.—On Sept. 24th, at Devonshire-place, W., the wife of Dr. A. W. Spence, of a son.

WALKER.—On Sept. 23rd, the wife of Dr. Hugh Austen Walker, of Loughton, of a daughter.

MARRIAGES

BARTLEY—TAYLOR.—On Sept. 22nd, at St. James's, Piccadilly, Christopher Hardy Douglas Bartley, M.B., B.Chir., to Margaret Edith Taylor, of Northwood, elder daughter of the late Mr. and Mrs. W. H. Taylor, of Harold Wood.

FLACK—LOMAS.—On Sept. 30th, 1936, at St. Mary's, Prestwich, Dr. Isaac Harvey, son of Dr. and Mrs. I. Flack, of Radcliffe, to Isabel Graham, daughter of Mr. and Mrs. E. Lomas, of Prestwich.

DEATHS

FITZGERALD.—On Sept. 22nd, William Edward G. Fitzgerald, L.R.C.P., L.R.C.S.I., of Finborough-road, S.W.

PERROTT.—On Sept. 17th, Charles John Perrott, L.R.C.P., L.R.C.S.I., of Kingswood, near Bristol, aged 73.

RUDD.—On Sept. 22nd, William Arthur Rudd, M.D. Durh., M.R.C.S. Eng., of Sandgate, Kent, late of Lexham-gardens, Kensington, aged 69.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LATE DR. WILLIAM MURPHY.—The death occurred at the end of last month of Dr. William Paul Murphy, a well-known Dublin physician. He was the son of a Waterford solicitor and graduated in 1927 as M.B., B.Ch., B.A.O. N.U.I. After graduation he took up radiological work and became radiologist to the St. Kevin's Hospital, Dublin, having previously been assistant radiologist at the St. Vincent's Hospital. He enjoyed the particular friendship of the university authorities, while he was also associated with much national work in the Free State, where his brother, Mr. C. N. Murphy, is assistant secretary to the Department of External Affairs.